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JPRS Report

Environmental Issues

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Environmental Issues

JPRS-TEN-95-004

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Kenya To Return Shipment of 'Radioactive' Powdered Milk

AU0702102495 Kiev HOLOS UKRAYINY in Ukrainian
3 Feb 95 p 5

[Report by Hryhorii Potapov: "One Cannot Fool Africans"]

[FBIS Translated Text]

"Infected Milk," Which Is Stored in Mombasa (Kenya), Will Be Returned to Ukraine

A large shipment of powdered milk that is "unfit for human consumption" that has been held for several months in the "Kenya Cooperative Creameries" storehouse will be returned to Ukraine, from where it had been imported to Kenya. This decision was adopted after protracted discussions by representatives of the administration of the Coastal Province, the "Kenya Cooperative Creameries" directors, and the local company "Agro-Metro," which had imported 100 metric tons of powdered milk "on the commission" of an unidentified Dutch firm.

Experts failed to propose a safe method for "disposing of" the "dangerous product" on the spot. Several tests of samples taken from the batch revealed signs of "microbiological and radioactive contamination." The last such test was carried out by the governmental chemical service, and its results were made public by Kenyan Minister of Health Joshua Angatia. It is true, though, that specific figures of the degree of contamination were never mentioned.

Local environmentalists spoke categorically against the destruction of the "infected milk" in Kenya. They maintain that Kenya does not possess the potential for destroying radioactive products.

Experts Pessimistic on Recovery of Baltic Sea

95WN0064A Helsinki HUFVUDSTADSBLADET
in Swedish 5 Dec 94 p 40

[Unattributed article: "Health of the Baltic Sea Still Deteriorating"]

[FBIS Translated Text] Stockholm—Will the Baltic Sea, severely stressed by overfertilization and environmental poisons, have a chance to recover?

Researchers are pessimistic today, unless the 80 million inhabitants around the inland sea change their lifestyle and drive cars less, eat less meat and drink fewer soft drinks.

This soberly pessimistic view of the future of the Baltic is represented by a number of normally optimistic researchers in a new document "Will We Have Life in the Baltic Sea?," which is published by the Coordinating Board of Swedish Research Councils, FRN.

The threat picture against the Baltic is changing. Old environmental hazards such as PCB and DDT are giving way and the gray seal population is beginning to recover. On the other hand, overfertilization will be a major problem for many years to come.

Added to this are new threats such as the M-74 fish disease, which threatens to eliminate the entire salmon stock and is now also likely to kill the cod.

Limnology professor Curt Forsberg in Uppsala sees no quick end to the phosphorus and nitrogen emissions into the Baltic Sea. He is of the opinion that Sweden has only bought temporary breathing space by expanding municipal water treatment plants with better purification processes.

Luxury Consumption

"The phosphorus separated out in chemical separation processes ends up in the sludge, which is only to a very minor extent returned to agriculture," he says. "Instead, year after year it is heaped on dumps near cities and gradually leaches out into the Baltic."

Curt Forsberg believes that the Swedes today practice luxury consumption of phosphorus, partly in the form of fertilizers in agriculture and partly as additives in foods such as meat and soft drinks.

Most Swedes live in densely populated areas and each Swede consumes an average of 1 kg phosphorus a year. This means that 8,000 metric tons of phosphorus each year is added to the cities, 4,500 of them with the basic food.

"If, for example, we eat less meat, without therefore becoming vegetarians, we can reduce the phosphorus added to the Baltic Sea by thousands of tons," he says.

If the food industry would then replace the phosphates with citric acid, for example, which works just as well, we have come a long way. Such ideas are slowly beginning to take root with food producers.

One of the greatest threats to the Baltic Sea is the continuously growing general use of cars in the Nordic countries, and the now rapid increase of cars in Poland and the Baltic states.

Nuclear Waste Representatives Defend Caribbean Shipment

FL1102192695 Bridgetown CANA in English
1716 GMT 11 Feb 95

[By Garfield Myers]

[FBIS Transcribed Text] Kingston, Jamaica, Feb. 11, CANA—Representatives of companies involved in the controversial shipment of nuclear waste which is expected to pass through the Caribbean Sea later this month say the radioactive cargo will pose no threat to the region. The shipment from Europe to Northern Japan via the Caribbean and the Panama Canal has elicited howls of protests from environmental groups and regional governments, including Caribbean Community member states who fear that an accident involving the ship and its cargo could lead to an environmental disaster.

But representatives from British, French, and Japanese companies involved in the transfer made a quick stop in Kingston this week, saying the shipment is "safe from any occurrence, likely or unlikely."

Prior to their stopover in Kingston on Wednesday and Thursday, the company executives visited Puerto Rico, Panama, and the Dominican Republic. They pointed to "a perfect safety record" in 27 years of similar shipments, "enhanced" safety procedures, as well as the "persistence of several inaccuracies" which they claim are being pushed by radical anti-nuclear groups. The inaccuracies relate to the true content of the waste which they insist contains no plutonium, a highly radioactive compound.

Captain Malcolm Miller, operations manager of British Nuclear Fuels (BNFL) transport, responsible for shipping the material, told CANA that the vitrified waste, which is what the nuclear material is called after undergoing a process to mix the waste with molten glass, is "perfectly safe." The process, he said, also involved pouring the vitrified material into 1.3-meter-high stainless steel containers which then "lock into a solid glass shape." He told CANA: "It is safe from any occurrence, likely or unlikely." He cited "independent" nuclear experts from around the world who attest to the perfect safety record of the process.

The vitrified waste which is recovered from nuclear reactors used for civilian purposes only is to be transported in "impressive" steel flasks specially designed and built for the purpose, Miller said. The "rigorous tests" to which the flasks were subjected include two "drops tests"—one onto a solid unyielding reinforced concrete surface and the other onto a steel spike. Such tests are said to be more demanding than staged incidents in 1984 in the United Kingdom, when a 140-ton train travelling at 100 miles per hour was driven into a flask which had been placed on the track. The train was demolished but the flask received only superficial damage. Other safety features include double steel hulls of the transport ships to withstand collision

damage, enhanced buoyancy, dual systems for navigation, communications, cargo monitoring and cooling systems, satellite navigation and tracking of the shipment, twin engines and propellers, and special fire-fighting equipment, including a system to flood the ship's hold with sea water.

Miller and his companions, Serge Runge of the French nuclear fuel cycle company, COGEMA, and Eiji Iwashige of the Japanese overseas reprocessing committee, claimed that even if it were possible for the vitrified material to become directly exposed to the sea, its leach rate in sea water was "extremely low" and radioactivity would not be detectable more than a few feet away. They emphasised that flasks used to carry nuclear material have to meet the rigorous standards set by the International Atomic Energy Association (IAEA) and be licensed accordingly by national regulations.

The representatives all discounted claims made in a document known as the "Lyman Report", which is highly critical of the shipment. They claimed that the report had been commissioned by the environmental group Greenpeace and contained "highly inaccurate" information. The shipment of 28 canisters is being transported from Europe to Japan under the terms of contracts signed between the Japanese Nuclear Utilities and the French Nuclear Fuel Cycle Company.

Greenpeace is leading the campaign against the shipment of nuclear waste and has sent its symbolic flagship, the "Rainbow Warrior," on a mission to stir up public opposition in the region. The Rainbow Warrior is expected to dock in Kingston on Sunday for a three-day visit. Its representatives are scheduled to meet members of the government and opposition and environmental officials.

REGIONAL AFFAIRS

Roundup of Environmental Reports

AB0702170595

[FBIS Editorial Report] The following is a roundup of recent environmental reports monitored from media in FBIS Abidjan Bureau and EAU coverage areas from 24 January to 6 February.

Burkina Faso

Dakar PANA in English at 1337 GMT on 6 February reports that household trash, dirty water, and industrial waste are choking town residents in Kadiogo Province, Burkina Faso, and "home of the nation's capital, Ouagadougou and 10 other villages. This city of half a million people disgorges 175,000 tonnes of rubbish a year. Of this, in 1993, only 30 percent was collected." Despite the efforts of the administrative and technical authorities, and of an association, an appropriate solution has not yet been found to these problems, according to Emile Ilboudo, the high commissioner of the province.

A seminar was held at the end of January for local nongovernmental organizations, NGO's, to help overcome the problem. Fifteen local NGO's concerned with environmental matters took part in workshops aimed at informing participants on the program of the global environment fund. Maximum information was provided to the participants on practical management techniques, the objectives of the program, the program's fields and zones of intervention, the criteria for selection, the rational management of fauna, and the development of local species. The fund, which is present in 36 developing countries, has been operating in Burkina Faso since 1994. Its objective is to fight "the planet's global warming, the destruction of biodiversity, the pollution of international waters, and the destruction of the ozone layer."

Cote d'Ivoire

Abidjan LE JOUR in French reports on 6 February that although Cote d'Ivoire protects its forests, the San Pedro timber port in the west receives large quantities of timber from Cote d'Ivoire, and from Liberia and even Guinea as well. The paper says "the frequency with which timber trucks are seen on the roads loaded with four or five tree trunks at a time is amazing for a country which claims to be actively combating deforestation." The heavy activities noted on the timber truck parking lot in San Pedro, where logs are stocked before loading "confirm that timber contractors are very busy in Cote d'Ivoire." A small portion of the logs is processed locally into planks, while most of the remaining logs are exported unprocessed.

The paper adds that the 1994 devaluation, and the need to replenish state coffers prompted the government to relaunch the timber trade. Cote d'Ivoire has actually adopted a program for the protection of its remaining forest, "yet, with 6.5 percent of its forests disappearing every year, it has one of the highest deforestation rates in Africa," the paper adds.

Officially, there are no more trees to fell in the western part of the country which is entirely devoted to cocoa growing, except the Tai forest near the Liberian border. Since this forest has been declared a protected natural site, it is forbidden to touch the least of its trees. This issue has even drawn strong reactions from farmers in the region. Through the more or less covert criticisms, a strong feeling of frustration and injustice can be noted: "When they decided to declare the forest a protected zone, they drove out farmers established there long ago. Now, we are banned from entering it, and yet people from Abidjan actually enter it frequently. Even trucks are seen loading logs there, but we are told that that is none of our business. It is the authorities's affair, and the National Forest Board is dealing with the matter," one farmer explained.

In fact, the large quantities of logs that can be seen on the roads or stocked at San Pedro port are misleading. All the logs exported through San Pedro do not come from Cote d'Ivoire alone. As a result of the war in Liberia, "indiscriminate" timber felling is increasing there. Timber contractors help themselves considerably in the areas under the control of armed groups which issue "exploitation authorization" in exchange for a few bundles of bank notes, of course, without any official supervision. War is expensive, and the necessary money must be found somewhere.

Guinea is also involved in this logging activity. A large quantity of the logs which arrive from the hinterland comes from the slopes of the 1,750-meter Nimba Mountains overlooking the Ivorian border. Whether legal or not, the timber trade there is very intensive, mainly in this season when the absence of rains makes feeder roads passable.

Gabon

Dakar PANA in English at 1501 GMT on 24 January reports that the UN Development Program, UNDP, has decided to help Gabon save its forests and environment, according to UNDP officials in Libreville. This effort is aimed at integrating government forestry management, and environmental protection plans. For example, the processing and export of wood products will be conducted only after the effects this activity has on the ecosystem have been determined. To this end, the country is preparing a national environmental action plan based on a study on the country's ecosystems, and on how the imbalance between humans and the environment threatens economic and social development. This plan will then serve as a reference for donors supporting environmental protection in the country.

"Gabon's forests are among the most diverse and plentiful in Africa. Close to 40 percent of the land is of primeval forest. Deforestation is relatively low at about 0.1 percent a year. The country also abounds in flora and fauna. It is arguably Africa's richest in vegetables, save perhaps for Madagascar. Gabon has at least 8,000 species of vegetables. It also has a wide variety of seaweeds, lichens, and bryophytes which are plants comprising true mosses and liverworts."

Gabon

"Apart from its 600 species of birds, Gabon has at least 150 different kinds of animals among them 19 primate species. Of these primates there are 35,000 gorillas, and 64,000 chimpanzees, which depend on the forests for their survival. There are 8,000 elephants in the country, and this number has been the most stable in Africa."

Gabon's "800-kilometer coastline and 40,000 square-kilometer continental shelf is choked with small pelagian fauna such as anchovy and sardinelles. There are crabs, lobsters, shrimp and cuttlefish. Tuna is fished for between six and eight months in the year. But a complete inventory of seafoods in the country's boundless estuaries, lagoons, lakes, and rivers is still to be finished. However, 10 new fish species have been discovered recently. But man is the single biggest threat to ecosystems and the environment, despite a weak farming sector, a population of 1.2 million, and a density of four people per square kilometer. People pollute urban centers," and animals are increasingly poached.

It has proven difficult to fight off these dangers. "For example the Forestry Department says it does not have reliable data on which to act. Nonetheless, Gabon is going ahead with its forestry and environment project being funded by the World Bank."

Nigeria

Paris AFP in English at 1452 GMT on 3 February, in a Lagos-dated item, says Shell Petroleum Development Company, SPDC, admitted in Lagos on 3 February that it has created "some problems of pollution" in the southern Delta region of Nigeria, but said it has launched a major environmental survey to take care of the problem. According to AFP "it is the first time the company has publicly admitted that it created an environmental pollution problem in its areas of operation in Nigeria."

"We have responsibilities. We do not deny that we have created some problems of pollution. And that is a fact we cannot and should not deny", the managing director of the company in Nigeria, Brian Anderson, said at a news conference. Brian Anderson denied that the announced environment project was motivated by international and local pressure, especially from the Ogoni community in southern Rivers State, on the company. He said the news conference had been called to emphasize the importance of the firm's new environmental project.

"The company's environmental study of the Niger Delta, which will catalogue the physical and biological diversity of the 70,000 square kilometers," will cost more than \$2 million, Anderson stated. The program, to be run by an independent committee consisting of national, regional, and international organizations including oil industries and the World Bank, will also include some "other interested parties" in the communities where Shell is operating in Nigeria, Anderson said.

For 1995, "Shell's joint venture partners have approved a budget of more than \$100 million for operational activities

directly related to environmental improvement. The company has completed the study on the problem of acid rain and water hyacinth control, two areas to which the company has always been accused of not paying attention," Anderson stated.

The SPDC, which spent \$30 million in community-relations development in 1994, plans to devote 10 percent of its total expenditure to the environment in which it is operating in 1995. Anderson said SPDC has 94 oil fields and 86 production stations in the Niger Delta area.

Lagos NTA Television Network in English at 2000 GMT on 31 January reports that the problem of erosion in Benin City, Edo State, is reported to be worsening. NTA Benin correspondent Mark Yebowe reports that after an inspection of the erosion sites, the state administrator, Colonel Bassey Asuquo, said the state government can no longer solve the problem. Apart from some major roads in the state capital, which have been devastated by erosion, many families have within the last one year been rendered homeless as their homes have collapsed into galleys created by erosion.

When the State Administrator Bassey Asuquo undertook an inspection tour of the erosion-ravaged areas, he expressed shock at the damage done to roads and residential buildings whose occupants have fled to safety. At Iyaba Street, the administrator saw that the road has been totally devastated by erosion. He immediately directed the general manager of the State Environmental Protection Agency, Mr. John Isi Dahome, to submit proposals to his office on erosion control strategies. Other erosion sites visited by the administrator include those at Demes Road, Upper Sokomba Road, and Virginia and Agboyomba Streets. He warned contractors formally handling erosion control projects in the state to get back to the sites.

NAMIBIA**National Assembly Unanimously Endorses Basel Convention**

MB0702053395 Windhoek DIE REPUBLIKEIN
in Afrikaans 2 Feb 95 p 5

[FBIS Translated Excerpt] Yesterday, Namibia joined the countries that have endorsed the Basel Convention, which exercises control over hazardous waste and the dumping of hazardous waste. Namibia's endorsement of the convention was unanimously approved in the National Assembly (NA) yesterday. Despite several tempting financial offers to allow the dumping of hazardous waste in Namibia, NA members decided not to accept the offers. During the debate, several NA members emphasized that no waste should be dumped in Namibia, no matter what the financial rewards. The motion to endorse the Basel Convention was tabled in Parliament by the minister for wildlife, conservation and tourism, Nico Bessinger.

He confirmed that industrialized countries are prepared to pay 6 billion [Namibian] dollars to dump waste in Namibia.

"These countries would not pay that much money if the waste was not extremely dangerous and harmful. One example is platinum, which has a life span of 24,000 years. Would this amount of money be sufficient for the storage and management of this waste over the years?" Bessinger asked.

The main goal of the Basel Convention is the effective management, storage, transportation, and dumping of dangerous waste.

According to Bessinger, "This can also be regarded as the first step toward determining methods to reduce the transportation of waste, to impose stricter control measures, and to ensure that the disposal of waste takes place in an environmentally friendly and harmless manner."

He also said that developing countries are often targeted by industrialized countries when it concerns the disposal of dangerous, poisonous, and nuclear waste. The absence of suitable legislation, lack of knowledge on the topic, shortage of experts in the field, and the economic situations of developing countries are the greatest limitations experienced by these countries.

"Namibia has a fragile environment and scarce water resources, which renders it helpless against activities such as the dumping of toxic substances. If Namibia, as a developing country, joins the Basel Convention, we will be assured of access to technical information and assistance with waste management," Bessinger said. [passage omitted]

Cabinet Ban Prevents Plan To Dump U.S. Municipal Waste

MB1002091195 Windhoek DIE REPUBLIKEIN in Afrikaans 6 Feb 95 pp 1, 2

[Report by Chris Jacobie]

[FBIS Translated Text] Mexico's plan to export millions of metric tons of municipal waste from several U.S. cities to Namibia from 1991-2001 was prevented by a cabinet ban.

Diplomatic talks already had taken place on the matter between Namibia, the U.S. Government, and South Africa. These significant revelations follow a comprehensive investigation into allegations of dumping made in the National Assembly during the debate on Namibia's endorsement of the Basel Convention on the control of waste material. Prime Minister Hage Geingob already has announced in the National Assembly that a parliamentary committee will investigate all allegations of waste dumping. In addition to the announcement, DIE REPUBLIKEIN can reveal for the first time that the cabinet, under a loophole in the Import Control Act (Act 45 of 1963), hurriedly promulgated an amendment to ban the importation of this municipal waste through Walvis Bay, thereby averting possible disastrous consequences for the country.

The former Rossing Stone Crushers and a Mexican group, Bloquera de Tamalipas and Fertilizante de Tampico, were involved in these attempts. They had approximately

500,000 metric tons of municipal waste at their disposal. American Eric O'Winston of Nashville, Tenn., was the go-between. Rossing Stone Crushers indicated that they wanted to import a quantity of municipal waste (ash) and that it was classified suitable for export by the U.S. Environmental Protection Agency. On 21 August 1991, the Ministry of Trade and Industry informed Rossing Stone Crushers that an import permit would not be necessary and that 10,000 metric tons of waste could be imported on condition that it is not toxic and would be used for brick-making. Rossing Stone Crushers had planned to store it in their quarry.

Several requests by the Namibian Government on the exact nature of the waste material were not answered by the Mexican syndicate. Senior officials became suspicious and reported the matter to the then-minister of Trade and Industry, Dr. Ben Amathila. Meanwhile, investigations from America and South Africa had pushed several unanswered questions to the forefront, and—after suspicions by the Namibian Government about the nature of the waste to have been imported from three U.S. cities—a submission was made by the ministry to the cabinet on 5 December 1991 to stop the imports to Namibia from going ahead. At the 40th sitting of the Namibian cabinet the attempt to export several million metric tons of ash to Namibia over a period of 10 years was finally stopped despite the carrot dangled in front of government in the form of much-needed millions of dollars. Prime Minister Hage Geingob and Information and Broadcasting Minister Ben Amathila confirmed the incident on 5 February, and Amathila pointed out that it was one of several attempts to dump nuclear waste in Namibia.

Geingob said Namibia is seen as an ideal dumping ground. "We have details of most of the international dumping agents and we are aware of their methods. We are ready for them. Let them come."

SOUTH AFRICA

Environmental Leader Says RDP 'Sold Out' Environment

MB0602170795 Johannesburg BUSINESS DAY in English 6 Feb 95 p 4

[Report by Catherin Crookes]

[FBIS Transcribed Text] The reconstruction and development programme (RDP) White Paper "sold out the environment," the Twenty-Two environmental initiative's new project leader Rupert Lorimer, said last week

Development and the environment could not be separated, yet the White Paper's authors, in their attempt to raise the nation's productive capacity through industry, placed emphasis on finite, depletable resources, he said.

The RDP should rather consider utilising natural resources which, if managed correctly, were infinite.

Lorimer, DP [Democratic Party] environment spokesman for a number of years and a key figure in pre-election peace

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structures, has retired from party politics to concentrate on promoting environmental concerns. Last week he took over leadership of the Twenty-Twenty project, a campaign for the establishment of a "sustainable" SA [South Africa] by the year 2020.

He wants to get sustainable development incorporated into the RDP agenda and into the new constitution. "With so much emphasis being placed on human rights it is now time to emphasise human responsibility. The RDP is holy writ, but if it is not based on sound environmental principles it will fall flat."

Lorimer has called for the Environment Ministry to be placed under the President's office, with similar powers being vested in Jay Naidoo's RDP Ministry. This would allow environmental concerns to be integrated into all policy decisions.

Elevating the status of the Environment Department should include an environmental auditor-general to oversee a national accounting system based on the principles of resource economics.

Twenty-Twenty aims to forge partnerships between environmental groups and organs of civil society, including government, business, labour, non-governmental organisations and local communities.

Pollution Reportedly To Force Country Into Nuclear Power

MB0302183795 Johannesburg BUSINESS DAY in English 3 Feb 95 p 3

[Report by Mungo Soggot]

[FBIS Transcribed Text] SA [South Africa] was the world's second worst carbon dioxide polluter in proportion to gross national product after China, the Atomic Energy Corporation's Don Mingay said yesterday.

He told a Price Waterhouse business breakfast that increasing worldwide pressure to slow global warming would discourage SA from increasing dependence on coal-fired power stations which produced carbon dioxide. Instead it would import hydro-electricity from the Congo.

But there was a strategic limit to the amount of electricity a country should import so it was likely SA would have to consider nuclear power.

Coal-fired power stations currently provided 92 percent of SA's electricity, while nuclear contributed 5 percent.

He said China released almost double the amount of carbon dioxide per unit of GNP of SA while France produced the least, 10 times less than SA.

France sourced almost 85 percent of electricity from nuclear plants—evidence of the correlation between fossil fuel use and carbon dioxide emissions.

If SA became a signatory to the Framework Convention on Climate Change—formed to address global warming at the Rio Earth Summit in 1992—it would have to make an independent assessment of the impact of its carbon dioxide emissions on the environment. It would also have to produce plans to address the situation which would encourage it to look at alternative energy sources.

Most of the increase in global power needed over the next couple of decades would come from developing countries which unfortunately were least equipped to control energy waste releases.

ZIMBABWE

Government Begins To Implement Environmental Action Plan

MB0602202595 Harare Zimbabwe National Broadcasting Corporation Network in English 1800 GMT 6 Feb 95

[FBIS Transcribed Text] ZIANA [Zimbabwe Inter-African News Agency] reports that the government is implementing a \$6 million district environmental action plan which includes the rehabilitation of the Sabi River. Natural Resources Department acting Director Mr. (Moses Mmemo) told the news agency that the plan was approved by the government in 1987, but had to be put on hold because there was no funding.

Comrade (Mmemo) said the reclamation of the (?silted) river will benefit the rural people in Manicaland. At the initial stages of its implementation, the project will highlight the problems in rural areas based on suggestions put forward by people from the affected communities.

Official Notes Cost of Pollution in Harare Water Supply

MB0802204195 Harare Zimbabwe National Broadcasting Corporation Network in English 1800 GMT 8 Feb 95

[FBIS Transcribed Text] A council official says the city of Harare spends \$4 million every month on purifying water due to the high concentration of pollutants in the city's [word indistinct] area.

In an interview with the ZBC [Zimbabwe Broadcasting Corporation] in Harare today, the director of works, Comrade (Tungai Mahachi), said the concentration of pollutants has gone up over the past four years due to the drop in the levels of water in the dams. Comrade (Mahachi) urged Harare residents to use water economically because the current water levels are (?uncomfortable).

Zhejiang Formulates Laws To Develop Forestry Resources

SK0702120395 Beijing XINHUA Domestic Service
in Chinese 1851 GMT 5 Feb 95

[By reporter Shen Haixiong (1957 3189 7160) and trainee Luo Jianwei (7482 0494 0251)]

[FBIS Translated Text] Hangzhou, 5 Feb (XINHUA)—The Zhejiang Provincial people's congress and the provincial forestry department and other departments have formulated laws and regulations for improving forestry in line with the provincial reality, strengthened the degree of law enforcement, promoted the protection, management, and development of forestry resources to enter the orbit of law, and effectively accelerated the development of forestry.

According to a briefing given by Cheng Weishan, director of the Zhejiang Provincial Forestry Department, at present this province has fulfilled the task of eliminating barren hills one year ahead of schedule; achieved an annual net increase of more than 2 million cubic meters of timber; and enhanced the forestry coverage rate to 54.7 percent, thus ranking first in the whole country.

Since 1985, Zhejiang Province has successively issued more than 10 local laws and regulations, including the "Zhejiang Provincial Forest management regulation," and the "Zhejiang Provincial plant quarantine implementation method," which have the content embracing the objectives for forestry construction, forest management, administration, protection, construction, and lumbering, and has formed a fairly comprehensive system of forestry laws and regulations. The promulgation and implementation of these laws and regulations have played a role in directly promoting and safeguarding forestry development. Based on statistics, over the past 10 years, Zhejiang Province has successively transformed low-yield forests, sealed off the mountains for forest cultivation, newly afforested more than 40 million mu of lands, and planted nearly 500 million trees "around houses and along rivers, roads, and ditches." At present, this province has more than 77.5 million mu of forest-covered areas and more than 120 million cubic meters of timber reserves, and succeeded in simultaneously increasing the forest areas and timber reserves.

In order to realize the continuous utilization of forest resources, Zhejiang Province established the forest fund system in 1989, encouraged tree-planting, afforestation, and rational lumbering and cultivation, and expanded the follow-up resources. During the recent four years, the province as a whole invested more than 100 million yuan annually in making the barren and semi-barren hills green on a priority basis, built tree belts around farm plots and protection forest system in coastal areas, and formed a gratifying situation in which the whole society run forestry and all the people plant trees.

Zhejiang Province has also established and perfected the law enforcing and management organs, dealt stern blows to

criminal activities on destroying forests, and checked the illegal acts of random lumbering. The province as a whole has basically formed the forest resources protection and management system, including forest resources administration and management, forest public security, forest fire prevention, prevention and cure of forest disease and insect pests, quarantine, and the building of nature reserve areas. Over the past 10 years, the 95 forestry public security organs across the province have investigated and handled 27,00 forestry cases of various descriptions and recovered more than 24 million yuan in economic losses for the state.

Shelterbelt Project Proves Successful, But Faces Problems

OW0402090195 Beijing XINHUA in English
0745 GMT 4 Feb 95

[FBIS Transcribed Text] Yinchuan, February 4 (XINHUA)—China has succeeded in constructing its largest shelterbelt over the past 16 years, but faces new problems to protect and extend it, according to a recent meeting held here.

The 4,480-km shelterbelt, which extends through the vast areas of northeast, north and northwest China, has protected these areas from sandstorms and desert intrusion.

A total of 17.88 million ha have been planted with trees, and 13.33 million ha of farmland has been put under the protection of the shelterbelt network since 1979, said Wei Diansheng, deputy chief of the Shelterbelt Construction Bureau under the Ministry of Forestry.

Statistics from the bureau show that some 22 percent of the sand land in the area has been renovated or transformed and a total of 40,000 sq km of desolate areas have been covered with green plants since the construction of the shelterbelt, which has also protected 10 million ha of grassland from desert intrusion and 30 percent of the land in the region from soil erosion.

As part of the second-phase of the project started in 1986, economic forest began to appear in the shelterbelt.

China has also succeeded in sowing by airplane and artificially planting trees in the areas where annual precipitation is below 400 mm during the shelterbelt construction. Sowing by aircraft has even been successful in desolate areas where annual precipitation is below 200 mm.

The shelterbelt construction, one of the nation's major project, has drawn worldwide attention and won international assistance.

When its third-phase is about to begin, however, the project is facing such problems as shortage of funds, the weakening of the government role, said Wei, adding that the natural conditions of the areas to be planted with trees make the project even more difficult.

Moreover, he said, some trees planted in the first two phases have been suffering from pests on a large scale.

Beijing Urges Developed Countries To Lead Emission Control

OW0902110495 Beijing XINHUA in English
0942 GMT 9 Feb 95

[FBIS Transcribed Text] United Nations, February 8 (XINHUA)—China today urged the developed countries to take the major responsibility in controlling the emission of man-made greenhouse gas and provide more financial and technological assistance to the developing countries.

Liu Daqun, Chinese delegate to the Intergovernment Negotiating Committee of the UN Framework Convention on Climate Change, said China is seriously concerned with the climate changes caused by increasing man-made greenhouse gas, and with its impact on the global ecologic system.

Addressing the 11th Conference of the Committee, Liu said that in the last two centuries since the Industrial Revolution, greenhouse gas in the atmosphere has increasingly accumulated, with most of it discharged by developed countries.

Even at present, the carbon dioxide emitted by the developed countries accounts for 75 percent of the total amount of the world, he said.

Therefore, he said, the developed countries should take the main responsibility for the climate change.

The developing countries, which claim 75 percent of the world population, consume only 25 percent of the energy, he said. As a result, the per capita consumption of energy in the developed world is 7 to 10 times more than that in the developing countries.

The main task facing the developing countries is to eradicate poverty, Liu said. Poverty is the root cause of the environment problems in most developing countries and the deteriorating environment in turn makes poverty even worse, the Chinese delegate explained.

Only by sustainable development and steady economic growth could developing countries break this vicious circle, he told the conference, which is attended by negotiators from more than 150 countries.

Liu appealed to the developed countries to act strictly in accordance with provisions of the Climate Change Convention, adopted in the 1992 World Environment and Development Summit in Rio de Janeiro, providing more financial and technological assistance to the developing countries.

The ongoing conference, from February 6 to 17, is the final preparatory meeting for a major session in Berlin this March, when the first Conference of the Parties to the Framework Convention on Climate Change will convene.

Qinghai To Stop Illicit Lumbering, Wildlife Hunting

HK0902093095 Xining Qinghai People's Radio Network
in Mandarin 2300 GMT 1 Feb 95

[FBIS Translated Text] On 26 January, the provincial government called an ad hoc meeting to make arrangements for the work of forest resources and wildlife conservation in our province.

Wildlife abounds in our province, with over 300 varieties of marketable wildlife, and over 40 of which are animals of state grade one and grade two; whereas there are 1.6 million hectare of forest and timberland. Our province has attached great importance to the work of forest resources and wildlife conservation and has done a lot of solid and fruitful work since the founding of our country, particularly in recent years, including the successive establishment of 35 no-hunting zones and natural resources conservation zones. As a set of rules and policies were recently promulgated by the provincial people's congress standing committee and the provincial government, the work of forest and wildlife conservation has basically got onto the track of rule by law.

Moreover, positive measures have been taken by various localities throughout the province. Departments of forestry and public security have set up conservation and management organs in major forests to carry out regular inspection and to deal a severe blow at illegal elements. However, as our province covers a vast territory and our infrastructure is backward, there are many administrative problems. The phenomena of illicit and indiscriminate lumbering and wildlife hunting cannot be stopped with repeated bans and have even gained ground in some areas. This has caused much concern from leading comrades of the central authorities. In order to earnestly implement the instructions issued by leading comrades of the central authorities, the provincial government called the ad hoc meeting.

At the meeting, Vice Governor La Bingli urged various localities throughout the province to set great store by the work of forest resources and wildlife conservation, to have a full understanding of the significance and urgency of the conservation work, to conscientiously strengthen their leadership over the work, to carry out the work of propaganda and education in an extensive and in-depth manner, and deal a severe blow, according to law, at illegal elements committing illicit and indiscriminate lumbering and wildlife hunting and profiteering. Moreover, relevant departments must work out corresponding administrative measures as soon as possible to heighten market administration and to resolutely stem the channels for circulating stolen timber and wildlife on the market.

Shanxi Province Takes Steps To Reduce Pollution
OW0902024895 Beijing XINHUA in English
0215 GMT 9 Feb 95

[FBIS Transcribed Text] Taiyuan, February 9 (XINHUA)—More effective steps are being adopted to bring water and air pollution under control in north China's Shanxi Province, one of the leading energy and chemical industrial centers in China.

Environmental pollution has been a big headache for long in Shanxi, hindering the growth of its economy.

Since 1993 the Provincial People's Congress, the local legislative body, and the provincial government have strengthened legislative work and ensured the enforcement of regulations concerning environmental protection.

So far, local people's courts at different levels have handled 3,347 cases of illegal activities in this regard.

Meanwhile, local departments responsible for environmental protection have tightened supervision and administration, urging enterprises in sectors such as coal mining, electricity, metallurgy, chemicals, textiles and building materials to control pollution.

Some 700 million yuan has been used to support 250 key pollution-controlling projects in the past two years.

Complete sets of pollution-reduction facilities and equipment have been designed, constructed and put into operation.

The new equipment is capable of processing 69.7 million tons of waste water, 903 million cu m [cubic meters] of dust and 15.88 million tons of solid waste every year.

The dust-controlled and noise-controlled areas have respectively reached 130 sq km and 238 sq km in Shanxi's major cities, such as Taiyuan, the provincial capital, and Datong, an important coal-producing city.

Science and technology have also played an important role in pollution control. Some 37 practical technologies have been introduced to help reduce and recycle pollutants emitted by small workshops, which produce coke, sulphur, paper and metal in backward ways.

At present, the province has 126 enterprises involved in the development and production of new pollution-reducing products, such as dust-removing equipment.

Meanwhile, foreign funds have been injected into the province's pollution-control projects in recent years.

Out of 25 major joint-funded projects in the province, five have attracted 125 million U.S. dollars from the Asian Development Bank.

About 17.65 million U.S. dollars will be invested in projects of waste water processing and recycling through co-operation between Changzhi City and two German companies.

Aided by the Japanese Government, about 26.25 million U.S. dollars has been poured into a desulphurization project of a thermal power station in Taiyuan.

The province's efforts have aroused the public awareness of environmental protection.

In Huguan County, local people have planted trees, checked soil erosion and established efficient ecological methods of farming.

The State Bureau of Environmental Protection has chosen the province as a candidate for "Global 500", a prize presented by the United Nations Environmental Program every year to promote global environmental protection.

Official Affirms Ability To Feed Growing Population

HK1302060495 Beijing XINHUA Domestic Service
in Chinese 0833 GMT 8 Feb 95

[By reporter He Ying (0149 3841)]

[FBIS Translated Text] Oslo, 8 Feb (XINHUA)—Today, Xie Zhenhua, director of China's State Environmental Protection Bureau, solemnly indicated that the Chinese people are able to feed themselves during a speech at the Oslo ministerial meeting on sustained production and consumption.

Xie Zhenhua expressed the above-mentioned viewpoint in response to a report entitled "Who Will Feed China?" by Lester Brown, director of the World Observation Institute, that same day. Brown said in his report that with economic growth and changes in the food structure, China will continuously increase its demand for grain. So, he raised the question: Who will be able to feed more than 1 billion Chinese people in the 21st century? And he asserted that nobody would be able to feed China.

In response to Brown's report, Xie Zhenhua pointed out that China is successfully feeding 22 percent of the world's population with only 7 percent of the world's farmland. In addition, China's GDP has increased by over 100 percent in the past 10 years and the people's living standards have been markedly enhanced.

He also frankly admitted that while China's economy is growing steadily, China's population is also increasing at a net rate of 14 million people each year. A shortage of farm land will become a prominent problem. He told participants in the meeting that China is strictly carrying out two basic national policies of family planning and environmental protection and is making efforts to control the rate of population increase and to raise its efficiency in utilizing resources. The Chinese Government will also make great efforts to increase agricultural investment in order to raise grain yields per unit area of farm land. At the same time, China will make efforts to develop biotechnology in order to accelerate agricultural development. Xie Zhenhua said that China hopes to increase cooperation with the international community in the field of agriculture and welcomes financial and technological assistance from various countries.

When talking about protecting and utilizing global resources, Xie Zhenhua pointed out: The population of the developed countries accounts for only 20 percent of the world's total, but they consume 80 percent of the world's resources. Xie expressed appreciation for the viewpoints of Indian Environment Minister Kamar Natch, who proposed the equal utilization of the world's resources according to population. He said: All countries have the right to equally share and use the world's resources.

Xie Zhenhua said in conclusion that when discussing solutions to global environmental problems, all the parties concerned should concentrate attention on solutions rather than problems.

Hainan Laws Protect Forest Resources; Figures Cited

*OW1202082695 Beijing XINHUA in English
0649 GMT 12 Feb 95*

[FBIS Transcribed Text] Haikou, February 12 (XINHUA)—Over the past six years, public security departments of the island province of Hainan in south China have punished more than 1,300 people for damaging forests in 3,439 cases, and saved 4.85 million yuan in forest property losses.

At present, a forest network made up by some 352,000 ha [hectares] of natural forests, 132,000 ha of coastal forest belts and 165,000 ha of timber forests has taken shape in the province. The waste mountains have been covered with green.

Before 1984 the area of tropical forests kept declining in the province. Local authorities have since limited the annual quota of timber cutting within 60,000 cubic m [meter]. In 1994 it completely stopped the cutting of natural forests.

Since 1988 the province has issued a series of rules, set up more public security organs, forest checkpoints, wildlife protection stations and forest fire teams to protect the forest resources.

Over the past decade, more than 100 million yuan has been put into forest protection. Since 1985 the area of artificial forests has been growing by 26,400 ha annually. In the past decade, the province's forest coverage saw a net expansion of more than 198,000 ha.

Hebei Makes Plans To Control Water Pollution

*HK1102030595 Beijing CHINA DAILY in English
10 Feb 95 p 3*

[By CD News: "Hebei to Limit Water Pollution"]

[FBIS Transcribed Text] Hebei provincial government plans to spend 370 million yuan (\$44 million) over five years to control pollution flowing into the upper reaches of Guanting Reservoir, a major drinking water source for residents in Beijing and Hebei Province.

Some 46 million yuan (\$5.4 million) will be used to treat 10 key pollutants, including the Xuanhua Paper Mill. The

rest will be invested in building two urban waste water treatment plants in Zhangjiakou and Yangfang of Xuanhua District.

The plants will each handle between 120,000 tons and 160,000 tons of sewage daily.

Guanting Reservoir is located between Zhangjiakou City of Hebei Province and Yanqing County of Beijing.

About 44 per cent of the land area of Zhangjiakou has been set aside as a water reserve area of Guanting Reservoir.

The related departments in both Hebei Province and municipal Beijing have tried in the past to preserve a safe water resource for domestic use and industrial production in the capital city.

Yet, the water in Guanting Reservoir is contaminated because lots of industrial and domestic waste water is discharged into the upper reaches of the reservoir, according to Beijing-based China Environment News.

Chemical oxygen demand (COD) and the amount of chemical ammonia and nitrogen discharged into the reservoir have increased, and blue-green algae have emerged in the water.

That pushed Hebei provincial government and the city of Zhangjiakou to work out the five-year programme on pollution control in the upper reaches of Guanting Reservoir and related rivers and their branches.

When the project is completed by the year 2000, COD and the amount of ammonia and nitrogen in Guanting Reservoir is expected to be reduced by 60 to 73 per cent.

Zhangjiakou City, despite financial difficulties, has already invested 55 million yuan (\$6.5 million) in the programme.

Two Hundred-Forty Tonnes of Radioactive Waste Unearthed in Central Harbin

*HK1911035894 Hong Kong MING PAO in Chinese
18 Nov 94 p B4*

["Special dispatch": "Over 200 Tonnes of Radioactive Waste Contaminates a 400-Square-Meter Area in Harbin"]

[FBIS Translated Text] Last month, environmental protection workers in Harbin, Heilongjiang, unearthed 240 tonnes of radioactive waste that had been buried for more than 20 years. This shows that the disposal of dangerous industrial waste badly needs improvement. According to a report, the unearthed waste poses a grave health hazard because it could damage bones and reproductive organs, which could lead to birth defects. The report adds that soil contaminated by the waste for long periods would pollute the surrounding air and underground water, but it does not say whether or not the health of residents in the neighborhood has been affected.

The 240 tonnes of unearthed waste was a by-product of Ra-26, which was used by a military factory in the production of fluorescent meters for aircraft.

The waste was buried in a dozen pits and wells in the 1960's, contaminating a 400-square-meter area in the city center.

The ZHONGGUO QINGNIAN BAO report says that the waste is the province's biggest radioactive waste problem, suggesting that other dumps also exist in Heilongjiang.

For decades, China pursued industrial development, particularly in heavy industry, without any concern for environmental protection. Waste products were simply buried, burned, or dumped untreated into waterways.

Harbin's environmental protection officials have been trying for five years to have proper facilities built for storing radioactive waste, but factories argue that they do not have the funding.

A gold mine, for example, refused to set up waste storage facilities or to build walls to control pollution, arguing that it did not have the money. As a result, for years, it has produced thousands of tons of radioactive thorium in the process of production each year.

An environmental protection engineer of Heilongjiang Province said that by law, enterprises that produce radioactive waste must build proper storage facilities. "The reality before us, however, is that few enterprises are willing to spend the money," he added.

REGIONAL AFFAIRS**DPRK Reportedly Willing To Cooperate on UNDP Projects***SK1002053895 Seoul CHOSON ILBO in Korean
10 Feb 95 p 3*

[Report by correspondent Hong Sok-chun from New York]

[FBIS Translated Text] It was learned on 9 February, that North Korea recently expressed its intention to cooperate on South-North joint-venture projects of the United Nations Development Program (UNDP) to relink the railway lines between the South and North, and to protect the ecological environment in the DMZ, thereby indicating bright prospects for the realization of such projects.

That day, a relevant Foreign Ministry official accompanying Foreign Minister Kong No-myong on his visit to the United Nations Headquarters, said: "North Korea has unofficially expressed to the UNDP its intention to cooperate, mentioning the fact that the UN-initiated South-North projects are apolitical."

In his meeting with UN Secretary General Butrus-Ghali on 8 February, Minister Kong exchanged opinions with Butrus-Ghali on North Korea's response and conveyed our government's policy of cooperating on this.

ROK, Japan Agree on Joint Environmental Projects*SK1002085295 Seoul YONHAP in English
0711 GMT 10 Feb 95*

[FBIS Transcribed Text] Seoul, Feb. 10 (YONHAP)—South Korea and Japan agreed Friday to launch joint projects on strengthening a monitoring system to prevent sea water contamination and on developing recycling technology for industrial waste, the Foreign Ministry said.

Concluding a two-day meeting of the joint committee on environmental cooperation, the second of its kind in accordance with a bilateral environmental accord signed in June, 1993, the two sides also discussed ways to promote environmental cooperation in the Northeast Asian region and the OECD Environmental Policy Committee, according to the ministry.

They also agreed on the need to exchange environmental experts for a variety of environmental cooperation projects and to enhance cooperation in international organizations, said the ministry.

Chong Hwa-tae, deputy director general of the ministry's international economic affairs bureau, was the South Korean representative at the meeting, and Takeuchi Ukio, deputy director general of the Japanese Foreign Ministry's Asian Affairs Bureau, was his Japanese counterpart.

ROK May Provide PRC With Loan for Sewage Disposal System*SK1002012395 Seoul THE KOREA HERALD
in English 10 Feb 95 p 3*

[FBIS Transcribed Text] In an effort to tackle the question of the West Sea (Yellow Sea) contamination, the government will offer China a loan for the construction of sewage and waste water disposal plants.

Environment Minister Kim Chung-wi reported the plan to President Kim Yong-sam Wednesday.

Concern has been raised here in recent years over the inflow of contaminated water into the sea and the movement of air pollutants from China to Korea.

The loan to China will come from the Economic Development Cooperation Fund, money for foreign assistance, according to the plan.

Minister Kim said he expects that the offering of the loan will help foster an atmosphere for Korean environment industries to make inroads into the Chinese market.

Government, PRC To Discuss Measures To Reduce Pollution*SK0902081095 Seoul HANGYORE SINMUN in Korean
8 Feb 95 p 1*

[FBIS Translated Text] On 7 February HANGYORE SINMUN reported on World Bank and Asian Development Bank research that 33 percent of damage in our country from pollution is due to the PRC. Environment Minister Kim Chung-wi will present the report "Measures To Deal With Environmental Pollution From the PRC" to President Kim Yong-sam this week and will work out countermeasures to cope with this problem.

A high-level Environment Ministry official stated on 7 February: "To deal with acid rain and the aggravation of pollution in the Yellow Sea caused by discharged pollutants from the PRC, three countries—ROK, PRC, and Japan—are pushing ahead with signing a northeast acid rain agreement that will enable them to set and reach a goal to reduce the amount of discharged sulfurous gas in Northeast Asia following their joint survey of the drift of acid rain."

To achieve this the Environment Ministry will participate in the "Rain-Asia" International Project Conference, which will be attended by delegates from governments of various countries, in Washington in May under the auspicious of the World Bank and, thus, will arouse international public opinion regarding damage in the ROK caused by the PRC. Prior to this conference, the Environment Ministry is expected to invite the director of the PRC Environmental Protection Bureau to Seoul in late April so he can outline PRC's measures on pollution problems.

According to the ROK-PRC Environmental Cooperation Agreement, the Environment Ministry has decided to induce the PRC to participate positively in six joint research projects related to acid rain, including a project on interstate drift of acid rain, during a meeting of the ROK-PRC Environmental Joint Cooperation Committee to be held in Beijing in early June.

INDONESIA

Forestry Funds Allocated as Contingency Budget Reserves

BK1302133495 Jakarta THE JAKARTA POST
in English 4 Feb 95 p 1

[FBIS Transcribed Text] Jakarta (JP)—The Forestry Ministry has transferred Rp. [rupiah] 596 billion (U.S. \$270.90 million) of its reforestation funds to the Finance Ministry as contingency state budget reserves, a minister said yesterday.

Should oil prices turn out lower than the government estimate, he added, the funds would be used to cover any shortfall in budget revenues.

"But it is entirely up to the finance minister to decide on the allocation of those reforestation funds, all of which have been collected from forest concessionaires," Minister of Forestry Jamaludin Suryohadikusumo told members of the Agriculture, Forestry, and Transmigration Commission of the House of Representatives (DPR).

The government, Jamaludin added, may use the funds either as contingency reserves to meet any shortfall in budget revenues or as investments in other projects during the next 1995-96 fiscal year beginning in April.

The government has set \$16.50 as the average oil price per barrel as the basis for estimating its oil and natural gas tax revenue in the coming fiscal year. Hydrocarbon will account for around 20 percent of the Rp. 66.2 trillion internal state revenues budgeted for next fiscal year.

The transfer from the Forestry Ministry increased the amount of reserves held by the government to more than Rp. 2.2 trillion. Of the total, Rp. 1.7 trillion comes from budget surpluses accumulated over the last three years.

Official figures recently showed that over the past five years Rp. 3.04 trillion in reforestation funds have been raised by forest concessionaires.

The reforestation funds whose amount depends on the species and quality of harvested logs, are designed to finance reforestation programs.

However, forest concessionaires who harvest their forests according to the government-mandated sustainable management rulings, are supposedly entitled to get back the funds they have paid to the Forestry Ministry.

Many House members have often suggested that the reforestation funds be counted in the state budget as government revenue so that their use can be supervised through the annual state budget.

The Forestry Ministry has retained the management of the forestry fund collection.

Many individuals and non-governmental organizations (NGO), however, were surprised last year when the Forestry Ministry, by virtue of a presidential decree, transferred approximately U.S. \$185 million of interest accrued

on the funds to the state IPTN [Nusantara Aircraft Industry] aerospace company in Bandung as an interest-free loan.

Eleven NGO's filed a suit against President Suharto through the State Administrative Court, but the presiding judge turned down the suit, arguing that the court had no authority to hear the case.

Jamaludin did not mention anything yesterday about the \$185 million transfer to IPTN.

He said the government, if forced by an emergency situation, might use the remaining reforestation funds to help balance the state budget.

The government was forced to use part of its reserves last year to compensate for the Rp. 1.71 trillion deficit in the 1993-94 budget, which was originally expected to balance at Rp. 62.3 trillion.

The deficit was caused primarily by the drop in world oil prices and larger-than planned operating and investment budgets.

Jamaludin also said that his office plans to spend Rp. 858.42 billion of the reforestation funds to finance various forestry development projects in the next 1995-96 fiscal year.

He added that Rp. 425.62 billion (49.58 percent of the total funds) will be used to develop 219,000 hectares of industrial timber estates, run mostly by state firms.

JAPAN

Tokyo To Propose Protocol on Carbon Dioxide Reductions

OW0502092295 Tokyo NIHON KEIZAI SHIMBUN
in Japanese 4 Feb 95 Morning Edition p 1

[FBIS Translated Text] The first round of a conference on the prevention of global warming will be held in Berlin in March and will be attended by signatories to the Global Warming Prevention Treaty. At the conference, Japan will propose setting a long-term goal of reducing carbon dioxide (CO₂) emissions after 2000. Although the Global Warming Prevention Treaty itself sets a goal for industrialized nations to reduce carbon dioxide emissions by 2000, many of the industrialized nations are not expected to achieve the goal by that year. Japan will propose setting a long-term goal of reducing carbon dioxide emissions after concluding that it will be more and more difficult to keep earth from being warmed if present carbon dioxide emissions are left unchecked. During the conference, Japan will propose that a specific goal, to be achieved by 1997, be set in the form of a protocol.

Specifically, Japan will propose formulating a protocol that sets a numerical goal of gradually reducing carbon dioxide emissions after 2000 and calls on the treaty signatories to take policy steps, including an energy saving step, to achieve the goal. Japan aims to show its aggressive

posture to tackle global environmental problems by making the proposal at the conference.

Japan, the United States, and other industrialized nations are obliged by the Global Warming Prevention Treaty to curb the 1990 carbon dioxide emissions levels by the year 2000, but the obligation is more of a goal. Japan's proposed protocol will aim to set a new goal that has a binding force to all treaty signatories, including developing countries. Germany, Switzerland, Belgium, Iran, and Kenya are expected to propose formulating the same protocol at the conference.

FY95 Environment Budget To Grow 3.4 Percent

*OW0702132295 Tokyo KYODO in English
1247 GMT 7 Feb 95*

[FBIS Transcribed Text] Tokyo, Feb. 7 KYODO—The government's fiscal 1995 budget for environmental protection is expected to grow 3.4 percent from the previous year to 2.6 trillion yen, Environment Agency officials said Tuesday [7 February].

Total outlays for environmental protection proposed in the plan for the fiscal year starting April 1 reached 2,598.7 billion yen for 20 government ministries and agencies, according to the Environment Agency's estimate.

The budget is now under discussion in the Diet and is expected to be passed without major changes.

Among major items, 527.9 billion yen is earmarked for a halt to global warming, 2.5 billion yen for protection of the ozone layer and 176.4 billion yen for recycling and waste disposal.

The government has also allocated 49.9 billion yen for international cooperation for environmental protection.

Official assistance to developing countries for the green cause has been set to grow 18.4 percent to 10.3 billion yen.

Tokyo To Send Environment Mission to China in April

*OW0502020195 Tokyo MAINICHI SHIMBUN
in Japanese 4 Feb 95 Morning Edition p 9*

[FBIS Translated Text] The government has decided to send Japan's first "environmental assistance mission" to China to be able to provide comprehensive assistance on environmental issues to that country. The mission will leave in April.

The mission's aim is to make the "environment" a key element in Japan's future economic assistance to China now that Japan-China negotiations on the fourth yen-based loans' first-half period (1996-1998) have been concluded. Since Japanese corporations are competitive in environment-related industries, the government also

wants to put more emphasis in its overall official development assistance (ODA) programs on environment-related projects than on infrastructure-oriented projects as in the past.

The mission, to be headed by an ambassador-level representative, will be composed of officials of seven government offices, such as the Ministry of Foreign Affairs, the Environmental Agency, the Ministry of Finance, and the Ministry of International Trade and Industry, plus officials of the Japan International Cooperation Agency (JICA), the Overseas Economic Cooperation Fund (OECF), local governments, the Federation of Economic Organizations of Japan, and the Japan-China Economy Association.

The mission will exchange views with the Chinese Government on environmental policies, and will tour northeastern areas and southeastern areas of China where environmental problems are said to be serious, in order to discuss assistance projects more specifically. The mission will also see if there are any areas where Japan can work together with international organizations or other countries like the United States.

In China, problems of atmospheric pollution, acid rain, water pollution, and desertification—all side effects of speedy economic development—have become serious. Japan has provided assistance on some individual cases of environmental problems, but because various offices and organizations have been involved in them, there have lately been views expressed that all the offices and organizations concerned should get together and act as a group to be able to be more effective in their efforts.

In the fourth yen-based loans, 15 out of 40 projects covered in them are those related to the environment. The monetary amount for the portion—at about 90 billion yen out of a total of 580 billion yen—is relatively small. Meanwhile, there have also been voices of criticism charging that these government economic assistance programs do not reflect Japan's position against countries conducting nuclear arms tests. As such, the government wants to dodge such criticism by making assistance on environmental issues look like the main element of its economic assistance programs for China.

Since the government stopped designating the country for aid recipient countries to buy equipment and supplies from in its ODA programs, Japanese companies' chances of landing orders from ODA projects have declined. On the other hand, Japan's technology in the environment sector is known to be highly-developed, and companies in the environment sector are much interested in the Chinese market. Companies of the United States and Europe are interested in the market as well. It seems that a fierce international trade war is about to break out over ODA-related business deals in China's environment market.

Companies Face Tougher Environment Standards
OW1302111195 Tokyo SHUKAN DAIYAMONDO
in Japanese 4 Feb 95 pp 41-44

[Article by Masashi Oguri: "A Giant Wave of 'Environmental Management and Inspection' is Threatening Japanese Companies"]

[FBIS Translated Text]

Report: A Repeat of The Failure to Obtain ISO 9000 Certification? "Standards for the [care of the] environment are being formulated at a steady pace. A lot of Japanese businesses, however, are complacent, saying, 'we will get to that issue after the regulations have been made.' All that achieves, though, is to postpone an inevitable problem. It will be too late for them to start screaming once everything is set."

"Even if you do not intend to be certified under the standards, it would be wise to start making preparations. Without them, Japanese products will be shut out of the U.S. and European markets. It is very likely that by the time you realize what is happening, things will already be at the point of complete collapse."

These are the views of managing director Tetsuro Fukushima of JACO (Japan Audit and Certification Organization for the Environment) which was established by 10 major electronics firms led by Hitachi, Ltd. He does not conceal his irritation at the way Japanese industry drags its feet.

Currently, efforts are being made to formulate standards for a system to govern and define the role and responsibility of private enterprise in working to enhance environmental preservation. These international standards for the care and preservation of the environment are being formulated under the auspices of the same ISO (International Organization for Standardization) that set the quality assurance standards, the ISO 9000 Series. The new standards are the ISO 14000 series.

The ISO 9000 quality assurance standards and the ISO 14000 environmental management standards are similar in that both are standards for management systems. They share identical fundamentals. So will it be enough to simply adhere to the ISO 9000 regulations? No, it is not quite that simple.

Fukushima continues: "It is likely the ISO 14000 will, in addition to being a management system, contain provisions governing performance, inspection of public statements, site assessment, labels, life cycle assessment, assessment at time of closure, and even safety and health conditions for laborers. We must prepare ourselves for something that appears similar, but is fundamentally quite different."

Another point the two quality assurance standards are likely to have in common is that although they will not be mandatory, but left to the discretion of individual firms, ultimately, there will be no viable alternative.

The ISO 9000 is now a prerequisite to conducting commercial transactions with European and North American countries. "If you want to do business, get certified," they say.

Proof of this can be found in the fact that the number of items in Japan certified as meeting the ISO 9000 standards, which was approximately 240 as of April 1993, skyrocketed to approximately 1600 by the end of 1994.

However, there were 30,000 cases certified as meeting the ISO 9000 standards in England, more than 5,000 in Italy, and approximately 4,000 in the United States, in each instance a marked lead over the number in Japan. In the area of environmental preservation, numerous firms in Europe and the United States are already taking an active stance in their approach to this issue, further underscoring the fact that Japanese firms have a markedly different perception of the issue.

Upon the establishment of the ISO 14000 (projected for sometime after January 1996), it is quite likely it will become a "prerequisite" in the same way as the ISO 9000 series, if not even more binding.

In Japan's industrial communities, however, the general attitude is still one of wait-and-see: "Yes, we are of course interested, but first we need to determine what will be the value of certification under the ISO 14000." (Japan Automobile Manufacturers Association)

Environmental Conservation Efforts: Integral to Business Strategy

Of course, it costs money to prepare for certification under the ISO 14000. Costs vary according to the circumstances of each firm.

According to Yoji Maruyama, certified public accountant at Century Audit Corporation: "Summing up the costs of setting up the system, e.g., establishing policy statements, manuals, goals, purposes, programs, etc., the costs of creating a specialized body and training personnel, and costs of some of the hardware, such as environmental monitoring equipment, it is said that the initial set-up costs would be in the range of hundreds of millions of yen."

Another estimate of cost is 0.5 to 0.6 percent of total sales.

In terms of environmental conservation performance (meeting environmental standards), such as in toxic substance emissions, Japanese firms rate the highest marks in the world.

The reality however, according to Seiichi Kubota, section chief at Keidanren's [Federation of Economic Organizations of Japan] Global Environment Office, is that: "When it comes to the question of whether efforts on environmental issues are integrated into the business operation system, the answer is, no, not sufficiently."

It will become necessary, therefore, to bear the costs and, at the same time, make changes in common perceptions.

In Europe, preceding the formulation of ISO standards, an environmental management system standard called the BS7750 was implemented in Britain in March 1992. The European Union as a whole has also adopted the EC [European Community] Environmental Management and

Audit Scheme regulation (EMAS) which is rooted in BS7750. It will come into force in April 1995.

It is not known how firms will deal with the EMAS after April, because EMAS is an EC regulation as opposed to a merely voluntary standard.

JACO's Fukushima says: "If European firms become certified, the local production bases of Japanese firms will have no alternative but to obtain certification in order to compete."

The ISO 14000, the EMAS, and the BS7750: There will be serious problems ahead unless we begin to prepare ourselves now.

SOUTH KOREA

Green Cross To Probe Pollution in Northeast Asian Ocean

SK0602082495 Seoul YONHAP in English
0726 GMT 6 Feb 95

[FBIS Transcribed Text] Seoul, Feb. 6 (YONHAP)—Green Cross International declared through a resolution Monday that it will investigate marine pollution in the northeast Asian ocean in September.

The international organization, headed by former Soviet President Mikhail Gorbachev, declared the resolution at a symposium on environmental protection held at the Grand Hyatt Seoul Hotel to commemorate the inauguration of Green Cross South Korea.

The Green Cross leaders in South Korea, Japan, the Netherlands, and northwestern Russia adopted the resolution along with Green Cross International.

"Mankind is inevitably facing the environmental disasters and the shortage of energy resources at the turn of the next century," the resolution said, "we also risk losing the foundation of cultural civilization and the life-giving source itself."

It added, "no effort will be spared from trying to revolutionize global environmental awareness and to improve the current systems into more environmentally-friendly systems. We firmly believe such environmental innovation should be spread worldwide regardless of race and nationality."

They specified four provisions in the resolution:

"—We recognize that the rapidly worsening marine and atmospheric pollution and the ruining of forestries are threatening the long-term development of the pollutive countries and the survival of their people, as well as mankind as a whole. To deal with these environmental problems, we declare to fully cooperate in finding ways to overcome this crisis.

—We will develop measures to solve the current marine pollution (problem) in Northeast Asia through mutual collaboration. This effort will be started off with an

investigation into the actual conditions of the northeast Asian ocean in coming September.

—We declare to aid other nations' environmental protection and improvement activities for the preservation of the global environment, and to develop various educational programs which could instill environmentally-friendly values in all people

—The Green Cross Organization in each country belongs to a single umbrella of Green Cross International and each takes part in an effort to create a more sustainable world of ecological coexistence in the twenty-first century which could enable well-grounded development of human civilization and world peace. We promise to be one in this purpose." [quotation marks as received]

Gorbachev To Attend Environmental Symposium in Seoul

SK0402004095 Seoul THE KOREA HERALD
in English 4 Feb 95 p 3

[FBIS Transcribed Text] Mikhail Gorbachev, ex-president of the former Soviet Union and currently president of Green Cross International, will arrive in Seoul tomorrow to attend a symposium sponsored by Green Cross Korea.

During the two-day symposium which opens Monday at the Grand Hyatt Seoul, he will give a lecture on the theme of "Politics and the Environment in the 21st Century," a spokesman for Green Cross Korea said yesterday.

Gorbachev will also hold a news conference and attend meetings of environmental organizations.

Leaders of environmental groups in the United States, Japan and Russia will also attend the symposium to discuss ways of resolving marine pollution in the Asia-Pacific region.

Gorbachev Arrives in Seoul for Green Cross Symposium

SK0502085495 Seoul YONHAP in English
0850 GMT 5 Feb 95

[FBIS Transcribed Text] Seoul, Feb. 5 (YONHAP)—Former president of the now collapsed Soviet Union Mikhail Gorbachev repeated Sunday [5 February] his willingness to arrange summit talks between the South and North Korea, saying "Now is the time for the South and North Korea to have summit talks after the end of the Cold War era."

"The most important thing in solving the South-North problem will be understanding each other," said Gorbachev who arrived in Kimpo Airport Sunday afternoon to attend a symposium Monday sponsored by Green Cross Korea, the Korean chapter of the international environment group Green Cross International headed by Gorbachev.

Who added [as received] that North Korea is destined to change even under the regime of Kim Chong-il, emerging as the successor to the late Kim Il-sung and that the pace of the change should be very fast.

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He hoped that such change could be linked to economic cooperation between the two Koreas, serving as an occasion to promote movements toward peaceful reunification of the Korean peninsula.

The former Soviet Union president, who launched the perestroika or reconstruction of his country, stressed the importance of environment as priority issues, adding "I will try to solve international environmental issues in cooperation with Green Cross Korea and other chapters."

He will attend a two-day event starting Monday and receive an honorary doctorate degree from Kyonghui University Wednesday before leaving Seoul Thursday.

President Kim Meets With Mikhail Gorbachev 8 Feb

SK0802112195 Seoul YONHAP in English
1100 GMT 8 Feb 95

[FBIS Transcribed Text] Seoul, Feb. 8 (YONHAP)—President Kim Yong-sam met with Mikhail Gorbachev, former Soviet Union president and now president of the International Green Cross, at Chongwadae [presidential offices] Wednesday afternoon.

Gorbachev was accompanied to the Chongwadae call by Kim Sang-hyon, co-chairman of the Korean Green Cross, and other Green Cross leaders.

President Kim and Gorbachev exchanged opinions on the importance of environmental protection and of international solidarity of environmental movement, Chongwadae spokesman Yun Yo-chun said.

President Kim, according to Yun, expressed the hope that South Korea would be able to more positively take part in international cooperation in environmental protection with the inauguration of the Korean Green Cross as a momentum.

Gorbachev was in Korea mainly to attend an international symposium on environment held to mark the inauguration of the Korean Green Cross.

MALAYSIA

Call for Maritime Safety in Strait of Malacca Viewed

BK0902142995 Kuala Lumpur Voice of Malaysia
in English 0810 GMT 9 Feb 95

[Station commentary]

[FBIS Transcribed Text] For quite a while now, Malaysia has been calling for an international conference on maritime safety in the Strait of Malacca. There have been several mishaps which have resulted in oil spill into the waters surrounding the littoral states of Malaysia, Singapore, and Indonesia.

Still the developed countries whose ships pass the strait daily take no heed. It is clear that for years, merchant shipping has regarded the freedom to pollute the waters as part and parcel of its freedom to navigate along the strait, which is totally unbecoming and smacks of utter irresponsibility on the part the merchant ships.

The recent case of several ships which have fled detention in Malaysia brings to light the need to police errant vessels. Existing regulations governing the territorial water have proven to be ineffective in managing pollution and dangers to the environment. So widespread has been the illegal dumping of waste by passing ships that has been common knowledge among both the maritime industry and the authorities. But little can be done in terms of enforcement.

About two years ago the littoral states tried to impress upon the International Maritime Organization, IMO, to permit them to charge shippers for the sludge they leave behind. But they were buried under authoritarian of International Legislation. This is because the United Nations Convention on the Law of the Sea forbids any levying of toll on grounds of innocent passage as it guarantees that all transit shipping is free to sail unmolested through international sea lane. However, this has been abused and the damage continues. The crux of the matter is that major maritime nations are reluctant at revising the legal concept of free passage.

But while they drag their feet, littoral states like Malaysia have to bear the cost of cleaning up the strait. One shudders to think of the dire consequences of a major oil spill to Malaysia's coastal environment as well as that of Singapore and Indonesia. Obviously, innocent passage cannot be so innocent when there is real threat of marine pollution. As such there has to be some burden-sharing by the littoral states and the users of the waterway.

The current state of affair, under the guise of outdated maritime laws, cannot be allowed to go on. Short of a world-waking disaster which is difficult to see the major trading powers conceding to changing the rules of the game. They have taken things for granted mainly because the current situation favors them. Like it or not, Malaysia and its neighbors along the strait are going to be left to look after the waterway on their own. The [words indistinct] Maritime Enforcement Coordinating Center due to be operational in 1997 will go a long way in elevating the problem, but this will not be enough taking into account oil spills can cause untold damage, beyond the financial capabilities of the littoral states.

The major trading nations cannot continue to turn a blind eye. They too must share the responsibility of safeguarding the strait if their rhetorics of protecting the global environment is to mean anything.

THAILAND

Burmese Separatists Consider Attacks on Gas Pipeline*BK1102143295 Bangkok BANGKOK POST in English 11 Feb 95 p 6*

[Report by "a Special Correspondent"]

[FBIS Transcribed Text] Embattled Mon and Karen separatists have begun making quiet enquiries about the possible reaction of foreign governments should any of their nationals be harmed during attacks on the planned Unocal/Total gas pipeline.

Thailand and the two companies have already inked the final pipeline contract.

The enquiries follow the launching of a major offensive by the Burmese army to wipe out the opposition groups.

The queries, coming from lower-ranking members of the two ethnic groups, have drawn a private warning from one senior American official who said that any group targeting Americans in Burma would receive the "Khmer Rouge treatment."

While the warning about threatening Americans was unambiguous, no U.S. official has voiced any concern for the security of the controversial pipeline.

The first threat against the pipeline came in August 1994 when the Thai government officials allegedly attempted to coerce the New Mon State Party into signing a ceasefire by forcibly repatriating Mon refugees.

Nai Pe Thein Zea, a Mon spokesman said at the time that "violence to destroy the pipeline would be our last option, but in the end we would have no choice ... (the SLORC) [State Law and Order Restoration Council] will force slave labour on the people without payment.

"This violates our fundamental human rights, so we will oppose the pipeline by any means." That threat has been repeated this week by both Mon and Karen rebels.

Unocal's president, John Imle, responded to threats against the pipeline in January during a meeting with activists in Los Angeles.

Imle told the activists that "my nightmare about this project is that threats of physical intervention of that pipeline will create a reaction from SLORC that could be tragic." He went on to warn that threats against the pipeline would only lead to more suffering on the part of the ethnic groups:

"If you threaten the pipeline there's gonna be more military. If forced labour goes hand and glove with the military, yes, there will be more forced labour. For every threat to the pipeline there will be a reaction."

Imle rejected allegations that human rights abuses in the area were in any way connected to the pipeline project and made particular reference to the charges of forced labor on the Ye-Tavoy railway.

Said Imle, "We will not allow those (human rights) violations to take place to our benefit, meaning on our property."

According to Mon intelligence sources, the Burmese army had stationed about 12,000 troops in the pipeline area prior to the current offensive against the Karen National Union.

The Burmese army is plagued with a lack of mechanical transport and so according to the U.S. government, the United Nations and Amnesty International, it regularly dragoons local villagers to carry ammunition and supplies into war zones.

Human rights activists estimate that while in the field the Burmese army uses about two porters for every soldier and that this forced labour can be attributed to "pipeline security."

Environmental and human rights activists have criticised other aspects of the project as well.

A spokesman for Green November 32, a Burmese environmental group mocked Unocal's public view to obey all the environmental laws of Burma on their project, noting that the country has no environmental protection laws.

Unocal and Total officials have so far declined to meet with the indigenous peoples whose lands the pipeline will cross.

Country Said To Need Help in Handling Toxic Waste*BK0602022395 Bangkok THE SUNDAY POST in English 5 Feb 95 p 4*

[Report by Nuanchan Singkran]

[FBIS Transcribed Text] Thailand is expected to produce about 2.8 million tons of hazardous waste a year by the year 2001 or about 200 per cent more than 1991's 932,638 tons.

The figure, published in a survey report from the Pollution Control Department, may not be too serious if Thailand is in a position to deal with the situation properly.

But the harsh fact is that the country cannot even deal with the comparatively small amount of waste churned out by industries each year.

At present, there are only two hazardous waste treatment centres in the country: one is the Samae Dam hazardous waste treatment centre in Bang Khun Thian in Bangkok's suburbs with a capacity of about 110,000 tons a year, the other is located in Ratchaburi Province and is a controlled landfill with a cell capacity of 11,000 tons.

The Samae Dam centre is run by a private company under a five-year contract with the Industry Ministry.

The company takes care of the collection, transport, treatment and disposal of waste.

A third centre operated by the Industry Ministry will be located in Saraburi Province.

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The ministry has allocated 87.5 million baht for the project and is now looking for a suitable site covering 500 rai.

A fourth centre, a 2,400-million-baht joint venture is planned between the Industry Ministry and two private companies, GCN Holdings and Vest Management, in Rayong Province.

The centre, scheduled to be completed by next year, will have the capacity to handle 500 tons a day of solid waste in the first year of operation and more than 1,000 tons a day in the third year or about 300,000 tons per year.

Resistance from local people had caused the Industry Ministry to shelve its plan for centres in Rayong and Chon Buri, but GCN Holdings is optimistic its Rayong centre will go ahead following a strong promotion campaign.

Managing director Phanpri Phahitta Nukara said there was no conflict between his company and the local people.

"Our officers have been sent to the area to talk with the local people," he said.

Because the Government is unable to provide treatment facilities for industries, each factory has to tackle the problems itself.

But factories often choose the easy way out and dump the dangerous matter outside the factory perimeter.

The report by the Pollution Control Department also indicates industries mismanage hazardous waste in Bangkok and nearby provinces.

Apart from dumping the waste illegally, some mix hazardous waste with household garbage and send it to the industrial estate for disposal as non-hazardous garbage.

Katsunori Nitta, the general manager of Precision Circuit Technology Thailand (PCTT) in Navanakhon Industrial Estate, admitted his company had dumped part of its hazardous waste over the past four years outside the province and mixed the rest with non-hazardous garbage sent to the industrial estate for disposal.

"We tried to comply with Industry Ministry guidelines but the ministry provided no landfill for factories to keep the waste. So we have to dump it somewhere else," he said.

Mr Katsunori said he was confident his factory was not alone in doing this.

"Almost all factories at the Navanakhon estate face the same problems as my company."

The company has two alternatives: construct a warehouse to keep the hazardous waste while waiting for the Industry Ministry to remove and treat it at the Samae Dam plant, or send the hazardous waste for treatment by the company in Singapore.

PCTT hires a private company to dispose of its non-hazardous waste at its landfill.

PCTT is just one example.

A report conducted by a team led by Dr Yuwari Inna of the Science, Technology and Environment Ministry found that many factories in Nonthaburi, Pathum Thani, Samut Prakan, Samut Sakhon, Nakhon Pathom and Ratchaburi lack the proper knowledge to handle hazardous waste.

The factories do not send solid waste to the existing treatment centre because the transport cost is much more expensive than hiring a truck to remove the waste and dump it.

Sathit Kiattikamchon, a scientist in biology waste water treatment and environmental control at the Lat Krabang Industrial Estate, said less than 10 factories at the estate have ever sent hazardous waste to the Samae Dam waste treatment centre.

"Some factories in the estate are able to keep the hazardous waste in their factories if it does not exceed 200 litres a year," he said.

Lack of controls on the sale of solid waste is another concern. Some factories in the estate are selling their solid waste to private companies instead of sending it to the Samae Dam centre.

The "not in my backyard" syndrome is another problem, resulting in the Industry Ministry suspending its projects in the eastern provinces of Rayong and Chon Buri.

In Rayong, local residents want a plant to treat waste from Map Ta Phut industrial estate as fast as possible but they don't want the plant located in their province.

Efforts have been mounted to make local residents realise the need for a plant if they want industries in their province and they have also been assured of the safety of the plant.

BULGARIA

Commentary Describes Belene Nuclear Reactor as 'Time Bomb'*AU1302133695 Sofia DEMOKRATSIYA in Bulgarian
10 Feb 95 p 3*

[Commentary by Velina Dimova: "Belene Nuclear Power Plant—Time Bomb"]

[FBIS Translated Text] Resuming the construction of the Belene nuclear power station has become a fashionable topic. People in high places are insisting on resuming construction. Ecologists and representatives of various parties and institutions, alarmed by the government's intentions, have reacted with a protest declaration.

It is well known that while billions of our people's money have been buried in the Belene construction site, there was no specific research to determine the location of the site. It was selected accidentally. It is no secret that the money has been buried in a construction project without the absolutely mandatory license needed for the construction of a nuclear power station. However, the planned nuclear power station also has other shortcomings. The experts are already aware of them, but out of various considerations they refuse to admit them.

The first shortcoming is in the planned 1,000-megawatt capacity of the nuclear power station. We know from the experience with the Kozloduy nuclear power station that reactors with such great capacities are absolutely unsuited to our power supply system. However, precisely such a reactor will be installed if the decision to resume construction is made. Indeed, it has already been purchased from the Czech Republic, where it was made. Moreover, the reactor was the first experiment by former Czechoslovakia to produce a Russian-type reactor at the time of the former CEMA. Is it not strange that even the country that produced the reactor and which at present is constructing a similar nuclear power station in Temelin, did not keep the reactor for itself, while some local smart ass decided to buy it and bring it to Bulgaria?

It is well known that the Temelin nuclear power station is being constructed precisely according to the same Russian draft as Belene. However, it appears that the only thing that the Czechs did not change in that draft is... the concrete. The Czechs adjusted the basic part of the project and invested a great deal of money in replacing many Russian systems related to protection and safety with Western systems....

It also is well known that we have no funds for any improvements and can only rely on cheap Russian equipment of dubious quality. We will be creating jobs for Russian nuclear experts at the expense of our safety. In exchange we will receive something that resembles our existing nuclear power station, described even by international nuclear experts as dangerous.

Well then, it appears that the government intends to place a "time bomb" in Belene. The entire world knows that

nuclear power projects are not constructed with just money but with a lot of money. In addition, no one has ever seen a written government program on developing the basic power supply sector. In other words, again someone is intending to achieve his goals by banging on the table... "in the darkness."

Commentary: BSP Leaving 'Horrible Legacy' of Nuclear Power*AU1302102995 Sofia DEMOKRATSIYA in Bulgarian
9 Feb 95 p 3*

[Commentary by Petur Kurdzhilov: "Much Red Radioactive Waste"]

[FBIS Translated Text] New times, a new government, new tunes. There is no longer a "national building project." There is a "building project of national importance." This is how they describe the Belene nuclear power station. But, did it not...? No, no buts! The red men in question (we mean the red ministers concerned with their own future) are rolling up their sleeves to construct a nuclear power station that will not be a monument to life but a monument to death. The Bulgarian Communist Party began the construction project; the Bulgarian Socialist Party [BSP] will complete it. This is the spirit of the changes—modern leftist changes.

What are the motives behind the intention to resume construction? New jobs. Thank you, dear people. But what about the farmers who live there? Who will eat their radioactive produce? The size of the radioactive pumpkins will astonish people at the "exhibitions of the achievements of the people's economy." Rumen Gechev [deputy prime minister] is hardly likely to eat those pumpkins. Filip Bokov is hardly likely to continue to drink the famous Svishtov wines. Just remember the special imports of Swiss milk for the Politburo members after Chernobyl. And who will be held responsible?

The second argument for resuming the construction is based on the claim that we depend on the import of gas, oil, coal, etc. Someone could switch off the faucet at any time.... What faucet are you talking about? Three gas pipelines cross Bulgarian territory: for Europe, Turkey, and the Middle East. Nevertheless, it is always our faucet that someone intends to turn off. This is nothing but grand blackmail.

The third argument is based on the claim that there is a shortage of electricity. You do not say! Then why are we exporting electricity? How much are we exporting? Into whose pocket is the money for it going? Why do those to whom we export not want to construct their own safe Soviet nuclear power stations? Because the Austrians, for example, are not idiots. We, on the other hand, are idiots. If you need a reminder, look up the election results again.

People, be vigilant! Watch out! Do not forget Chernobyl! Do not forget Svishtov's earthquake, even though the experts claim that there has never been such an earthquake! Do not believe the tale that nuclear power is the cheapest! It is the most expensive! It costs lives! Our lives.

Remember that at present there is no "packing" that "lasts" longer than the processed nuclear waste. This means that in addition to the dollar debts, we will be leaving our children and grandchildren a horrible legacy: red radioactive waste! It is obvious that there are multi-interests involved in this energy multiswindle. Whose interests? Big bucks and prodigious greed are involved. We must ask ourselves who are the real factors pulling the strings of the "red ecologists" puppet theater. If we do not want to be deceived again, we must ask whether Bulgaria really needs more electricity? Who is using it? Who is paying for it and how much? What is the real price of the electricity? Only after we know all this can we have our say. If the construction project is of national importance, it means that this is a serious matter. A serious matter requires a national referendum!

HUNGARY

Environment Minister Comments on Mochovce Nuclear Plant

LD1202205395 Budapest MTV Television Network
in Hungarian 1800 GMT 12 Feb 95

[FBIS Translated Excerpt]

Announcer: The guest of The Week program is Environment Minister Ferenc Baja. Good evening. Your ministry has not dealt with the issue of the Mochovce [Mohi] nuclear plant for five years. I heard that it was difficult to find the files. How is it possible?

Baja: Look, the last briefing about the power station was held in 1989, when those living in the vicinity were informed about the project at a Hungarian initiative. [passage omitted]

We have not dealt with it enough, although it is a dangerous plant. However, I have to tell you that the Austrian side dealt with the issue in a very intensive way, but it was unsuccessful. Thus, I have to say that the situation would not be different now if dealt with it in a more resolute way.

Announcer: What will the government's stance be in light of the public inquiry [held on 10 February in Budapest].

Baja: In light of the public inquiry, the developments since then and the Slovak stance—which became clear at the public inquiry—the government's scope is very limited. [passage omitted]

I have to say that Hungary's protest has not got any real effect since no international agreement restricts Slovakia. However, I am of the view that, even if it is a formality, Hungary's interests have to be formulated. I think that, if it wants to join Europe, Hungary should join a nuclear plant-free Europe. This is also my personal view.

However, at the same time it is also evident that in addition to this, our second interest is to strive for as much safety as possible in this region. This also transpired at the public inquiry and it is also the citizens' interest. Thus, if despite our protest, we cannot prevent the completion of the power station, then our interest lies in the safest

possible operation of the power station. We have tools for this through international accords and joint monitoring surveys. This is the direction the talks have to continue in. This is the lesser of two evils.

Announcer: How will Peter Akos Bod vote in the EBRD general assembly? He represents the Hungarian position with his vote.

Baja: I think that today the main thing is not how Peter Akos Bod will vote—especially in light of today's Russian offer [to help the completion of the project financially]. The main thing is that while maintaining contradicting positions, relations should not become so acrimonious that at the end the two sides are not willing to talk about the power station itself. The Hungarian position and interests are clear. However, if Slovakia completes the plant at all costs, then it will be very important to have talks despite of the contradicting positions. We will try to guarantee the safety of the citizens of Hungary at a maximum level. This is at stake.

In addition to the public inquiry, the government will obviously ask for the opinion of the International Atomic Energy Agency and the Hungarian atomic energy committee. I will inform the foreign minister. My interest lies in the safest possible operation of the nuclear station—if it has to be completed at all costs. However, I am not an advocate of nuclear plants. [passage omitted]

POLAND

Ex-Soviet Base Poses Ecological Threat to Szczecin

MM1002092495 Szczecin GLOS SZCZECINSKI
in Polish 1 Feb 95 p 1

[Article signed "PIT": "Ecological Time Bomb in Loecknitz Threatens Szczecin: No Matter Whether of German or Russian Origin"]

[FBIS Translated Text] Many Szczecinians must have felt their hearts miss a beat when they read the information, carried recently in our paper, about the ecological "time bomb" that is to be found just over the border. The subject of our article was a wooded area located no more than a dozen or so kilometers west of Szczecin, in the vicinity of the German city of Loecknitz, where a munitions factory was in operation during the war. During the East German era the armed forces of the former USSR were stationed here and had the territory under their exclusive management. It has now been disclosed that a store of chemical warfare substances exists in the area, including such highly dangerous compounds as arsenic, dioxins, and furans.

Several days ago representatives of Szczecin Voivodship authorities and delegates of the Szczecin Voivodship Office Environmental Protection Department played host to Manfred Assmus, the Mecklenburg-Vorpommern government's plenipotentiary for cooperation with Szczecin Voivodship. Assmus declared, among other things, that the woods around Loecknitz contain no ground or water contamination resulting from operations carried out when

the munitions factory was active here in the past, or from the presence of the Wehrmacht forces. The contamination of the area is to be attributed entirely to the Soviet armed forces stationed here. This is because the territory was sealed off and no one really knows what the Russians were doing in the area.

"Mr. Assmus suggested that our specialists join the German team of experts and carry out a joint investigation of the area in question," Jerzy Grzeskowiak, director of the Department of Environment Protection and Land Development Supervision at Szczecin Voivodship Office, tells us. "The German experts have already begun their investigations there."

The matter is extremely serious. The compounds found in the contaminated area belong to a group of very powerful poisons whose effects on those who come into contact with them range from paralysis through cancer to kidney or liver damage, as well as other serious medical conditions. It is not yet possible to determine precisely the range or actual amounts of the poisons which are to be found underground in the Loecknitz woods, or where exactly they are located. As far as the residents of our city are concerned, it is not particularly important whether the "time bomb" is of German or Russian origin. What matters is that Szczecin is situated in an area where regular westerly winds prevail, and that, once released into the atmosphere, all those noxious substances are likely to drift here and attack us.

ROMANIA

Decline in Population Growth Blamed on Chernobyl Radiation

*AU1302090495 Bucharest ROMANIA LIBERA
in Romanian 4 Feb 95 p 16*

[Sorina Vlaicu article: "Cancer and Congenital Malformations—Radiation from Chernobyl and Kozloduy Reached Bucharest, Too"]

[FBIS Translated Text] "Half of the 279 infant deaths under one year of age in 1994 took place in maternities, due to congenital malformations and prenatal afflictions" said Professor Dr. Nicolae Angelescu, director of the Bucharest Health Care Directorate.

The effects of radioactive discharge from nuclear power plants in Chernobyl and Kozloduy can be felt in Bucharest, too, especially through an increase in the number of cancer cases and congenital malformations. So far, 30,085 patients with malign tumors have been registered and 4,955 new cases were discovered in 1994. Of the total 24,502 deaths, cancer represents the second major cause of death, after heart disorders. The small number of births: 477 [as published], means natural population growth in 1994 is seriously negative at minus 3.4 per thousand inhabitants. The greatest decline in population growth has been registered in Bucharest Sector 1, with only 8.8 per thousand inhabitants.

REGIONAL AFFAIRS

Greenpeace: Caribbean 'Universal' in Opposition to Waste

FL0702165795 Bridgetown CANA in English
2249 GMT 6 Feb 95

[From the "Broadcast News Summary"]

[FBIS Transcribed Text] The international environmental group, Greenpeace said Monday there was near universal opposition within the Caribbean to a proposed shipment of plutonium waste through the region. The organisation issued the statement as its flagship, the Rainbow Warrior, prepared to leave Puerto Rico for the Dominican Republic.

Greenpeace officials have been on a Caribbean tour mobilising opposition to the proposed shipment. The environmental group said during the ship's four-day visit to Puerto Rico, public and governmental opposition to the plutonium waste shipment solidified.

Countries involved in the shipment—Japan, France, Britain—had sent a three-man public relations team to Puerto Rico in advance of the Greenpeace visit.

East Caribbean Central Bank Governor Discusses Integration

FL1102165895 Bridgetown CANA in English
1512 GMT 11 Feb 95

[FBIS Transcribed Text] Kingstown, St. Vincent, Feb 11, CANA—Governor of the East Caribbean Central Bank Dwight Venner said the Organisation of Eastern Caribbean States (OECS) needs to take firm decisions on a number of key issues in this a second major period of adjustment, the first being in the early 1980's. He identified these as determining limits to economic, political, and social integration, determining what levels of integration into the international economy are possible and desirable, what models of developments should be pursued, and how to manage the period of transition to more open economies, the levels of resources which should be allocated to human resource development in general and to education in particular, and what emphasis should be placed on natural resource management and the environment. He outlined as well the need to decide what actions need to be taken with respect to maintenance of law and order in general and, particularly, the drug problem and its socio-economic ramifications, and what are the respective roles of the public and private sectors in the new dispensation.

Speaking to a cross-section of professionals and government officials at a private luncheon and later at a public forum, Venner outlined what initiatives the ECCB has been undertaking and made recommendations for future thrust. Fiscal reform, he said, was fundamental, as is the need to fashion an economic development strategy which would "define the vision of our economies in the twenty-first century and the strategies for getting there." The ultimate objective of initiatives in development of money and capital markets, he said, "is to create one financial

space out of the separate markets which now exist," and a number of regulatory and other frameworks are targeted for change. On the question of external relations, the ECCB official said concerted external relations policy was necessary "in light of the current and rapidly changing regional and international environment." Given the small size of countries, Venner suggested that the OECS "negotiate a credible position within Caricom ... and then through Caricom, as a group," carry over their position to the Association of Eastern Caribbean States.

Argentina, Paraguay, Bolivia Create Trinational Commission

PY1002230995 Asuncion ABC COLOR in Spanish
10 Feb 95 p 12

[FBIS Translated Text] The Bolivian, Paraguayan, and Argentine foreign ministers, Antonio Aranibar Quiroga, Luis M. Ramirez Boettner, and Guido Di Tella respectively, yesterday signed in La Paz, Bolivia, an agreement formally creating the Trinational Commission for the Development of the Pilcomayo River Basin [Comision Trinacional para el Desarrollo de la Cuenca del Rio Pilcomayo]. The commission will be responsible for the hydrological and environmental future of the upper, middle, and lower Pilcomayo River.

The brand new commission will promote technical studies and proposals that the governments must approve to transform this region into a focus of development, in accordance with the wishes expressed by Presidents Carlos Menem, Juan Carlos Wasmosy, and Gonzalo Sanchez de Lozada during their 26 April 1994 meeting in Formosa, Argentina.

Argentina, Paraguay, and Bolivia created the Trinational Commission "considering the need to establish a permanent juridical mechanism responsible for the integral administration of the Pilcomayo River basin. The Commission will promote the sustainable development of the river's area of influence, the full exploitation of its natural resources, the creation of jobs, as well as investments and the rational and equitable use of hydrological resources," stated the agreement signed yesterday by the foreign ministers of the three countries that share the Pilcomayo River.

The document says the decision was adopted taking into account the River Plate Treaty, which provides for "the rational and multiple use of river waters."

The Bolivian foreign minister said that we therefore "fulfilled what was expressed in a joint declaration signed by the presidents of Bolivia, Argentina, and Paraguay on 26 April 1994 in Formosa, Argentina."

The Trinational Commission will be comprised of a Council of Delegates, as the higher organ, and an Executive Board that will be subordinated to the council.

The Council of Delegates will be the Commission's highest authority, and will be made up of delegates from each country. The first delegate will be a Foreign Ministry

representative and will have the rank of ambassador. The second delegate will be the national director of each country's Pilcomayo Commission.

According to the regulations approved by the foreign ministers, the Trinational Commission will be responsible for the study and implementation of joint Pilcomayo River projects seeking to develop the zone.

Some of its functions will be to continue the necessary studies and work to obtain multiple, rational, and harmonious use of river resources in order to control floods, sediments, and water flows.

BAHAMAS

Potter's Cay Dump Raises Health Concerns

FL0802194195 Nassau Bahamas Radio Network in English 1800 GMT 8 Feb 95

[FBIS Transcribed Text] The constant dumping of conch shells at Potter's Cay dock is now becoming a concern to workers in the area. But, as Shelly Lewis discovered, the problem is getting some attention:

Lewis: The western end of Potter's Cay dock, which was once used for the sale of fruits, fish, and vegetables by local vendors, is now a dumping ground for conch shells and other garbage. It is an area with an ideal harbor within eyesight of cruise liners and tourists: Just west of the popular Paradise Island bridge, it's now an eyesore. Earlier this year, the Department of Fisheries gave approval for the dumping of shells in a designated area. The intention, however, was to have them moved to the city dump on a regular basis. In January, there was a large accumulation of shells in the vicinity. Today, persons are dumping more than just shells, creating a possible health hazard. Workers in the Potter's Cay area have complained about the garbage and foul odor repeatedly. Officials from the Department of Environmental Health said they are aware of the problem. However, some collaborate efforts are being made with the various ministries to deal with this. In the meantime, the problem persists despite the antilittering laws in the Bahamas.

BARBADOS

Opposition Seeks Resignation of Minister, Attorney General

FL0502212395 Bridgetown CANA in English 1759 GMT 5 Feb 95

[FBIS Transcribed Text] Bridgetown, Barbados, Feb 5, CANA—An opposition parliamentarian has suggested that Public and Works Minister George Payne resign from the Cabinet over his opposition to a decision by the five month-old Barbados Labour Party (BLP) government to establish a new landfill in his constituency.

Last Friday, Health Minister Elizabeth Thompson announced that government would start dumping the island's garbage in Greenland, a picturesque area in the rugged Scotland District in the eastern parish of St.

Andrew, which Payne represents in parliament. But Payne has made it clear he backs "100 percent" efforts by residents to prevent government from locating the dump there. The Sunday SUN newspaper quoted shadow minister of the environment, Johnny Tudor, as saying Payne had little choice but to resign from the Cabinet.

"He should resign immediately. He has taken a position diametrically opposed to them (Cabinet) and he should not hesitate to resign," Tudor said. Leader of the minority opposition National Democratic Party (NDP), Dr. Richie Haynes, has also hinted that Attorney General David Simmons should tender his resignation.

The current landfill at Mangrove Pond is situated in the central parish of St. Thomas, which Simmons represents. Government announced plans to close the facility by June 30 after repeated complaints about the health hazards it posed.

"...By demanding closure of Mangrove by June, Simmons had effectively reduced the options available to Cabinet to examine in detail all the possibilities, and has forced it into this precipitous action," the Sunday SUN quoted Haynes as saying.

Tudor said that, "What should have concerned Mr. Simmons was the proper management of the dump at Mangrove, which he, in fact, insisted on." Former Prime Minister Erskine Sandiford described the government's decision as "foolish" and said his Democratic Labour Party strongly supported the residents' protests.

"I was hoping that the government would be able to do better, but in this case we have to tell them and tell them loudly, this is a foolish decision and they should go back to the drawing board," Sandiford added.

In announcing the decision, Health Minister Thompson said: "Greenland is composed of clay soil and for this reason is ideally suited for a landfill. This will therefore reduce the cost of constructing and operating the landfill ... the likelihood of ground water contamination is non-existent."

Government To Relocate Landfill

FL0302221295 Bridgetown CANA in English 1754 GMT 3 Feb 95

[FBIS Transcribed Text] Bridgetown, Barbados, Feb. 3, CANA—After months of controversy, the Barbados government on Friday announced it would start dumping the island's garbage in Greenland, a picturesque area in the rugged Scotland District of the eastern parish, St. Andrew.

Minister of Health, Liz Thompson, told reporters Greenland would be the site of Barbados' "new landfill and solid waste facility". Ms. Thompson said during a news conference that the 74-acre site was "ideally suited for a landfill", because of its clay soils, its distance of about half a mile from the nearest home, its being off the path to tourists and its being down-wind of residential developments. "Greenland is composed of clay soil and for this reason is ideally suited for a landfill. This will therefore reduce the

cost of constructing and operating the landfill. In addition, the likelihood of ground water contamination is non-existent," she explained.

"Greenland is a valley. In fact, it is a quarry site. It lends itself to landfilling and reduces the possibility of odour dispersion. The site is vast, with large quantities of mould which will be used to cover the refuge and eliminate problems with odour and rodent infestation.

"Greenland is off the beaten track, is screened by trees and is not visible from any of the nearby tourist attractions. It is downwind of residential development, so no odour will reach St. Andrew residents."

The announcement on the landfill came amidst strong opposition from people living in St. Andrew, backed by their parliamentary representative, George Payne, who is also Transport and Works Minister. Conservationists and environmentalists here are also against any landfill in the eye-catching parish, which they describe as one of the last vestiges of rural Barbados.

Barbados' main dump, at Mangrove Pond in the central parish of St. Thomas, is near its capacity. Government announced plans to close it by June 30, after hearing repeated complaints about the hazards it posed to health.

The first stage at Greenland will be ready by July 1, Thompson said.

BRITISH VIRGIN ISLANDS

More on Appeal to UK Over Plutonium Shipments

FL1002015495 Bridgetown CANA in English
2143 GMT 9 Feb 95

[FBIS Transcribed Text] Tortola, British Virgin Islands, Feb. 9, Cana—British Virgin Islands Chief Minister, H. Lavity Stoutt has written the British Foreign and Commonwealth Office (FCO), objecting to a shipment from France of radioactive plutonium waste, expected to pass through the Caribbean on its way to Japan, the Government Information Service here reported Thursday. In a letter addressed to John Kelly, head of the West Indian and Atlantic Department in the FCO, Stoutt said that he had learnt that the waste, scheduled to be one of many, would be carried by a British freighter and that the governments of France, Japan and the United Kingdom had decided to keep the transport routes a secret. "I wish to reiterate and emphasize our objection and to call on the government of the United Kingdom to dedicate itself to protecting the life and health of its people in the Caribbean Dependent Territories," Stoutt. The International Atomic Energy Agency has given assurances that the shipments will be implemented within certain standards but, according to Stoutt, "it appears that these standards have not been drafted with an awareness of shipping or maritime conditions." The leaders of the Caribbean Community have also expressed strong opposition to these shipment.

ECUADOR

Forest Resources in Santo Domingo Endangered

95WN0096A Quito EL COMERCIO in Spanish
24 Jan 95 p E8

[FBIS Translated Text] Santo Domingo, Ecuador—At least 100 native species of plants have largely disappeared from the Canton of Santo Domingo, including the coconut palm and the "sande" (indigenous species of tree). The Forestry Plan will reforest 1,000 hectares.

An imbalance is growing between the commercial use of the forests and reforestation in the Canton of Santo Domingo de los Colorados. Previously, the canton had forests covering 150,000 hectares. Now they cover only 10,000 hectares.

The Canton of Santo Domingo, because of its location on the western flank of the western ridge of the Andes Mountains, has a humid, subtropical forest that has been declared by researchers to be one of the richest locations in terms of biodiversity.

The canton had at least 100 forest species that, for the most part, no longer exist.

The higher degree of deforestation has been caused by settlement activity, the unplanned felling of forests, and the improper management of agricultural soils. This has caused them to erode, according to specialists in the matter.

Galo Recalde, an expert from the Ecuadorian Forestry Institute of Natural Areas and Forest Life (INEFAN), has pointed out that the PLANFOR [Forestry Plan] reforestation program is now under way to halt the further worsening of this situation. Under an agreement reached with farmers in the area PLANFOR will begin with the reforestation of 1,000 hectares.

The plant species that will be used in this program are: the pachaco [indigenous species], balsa [balsa tree], and rubber trees, among others. Furthermore, agreements will be signed to extent non-repayable loans with an investment of 400 million sucres.

The first loans have already been extended to residents of Valle Hermoso, Cristobal Colon, and neighboring communities.

Nelson Andrade, a technical expert from FORESA [Forests Incorporated], a factory that produces plywood products for the domestic and international market, has condemned the disappearance of coconut palm and sande trees, raw material which the company is now obtaining in the Province of Esmeraldas.

According to well informed sources, it is necessary to plant forests and to demand that timber cutting companies reforest the area.

Another subject affecting forest development is human settlements in the basins of the Lelia and Toachi-Pilaton

Rivers, where there are protective forests with a fragile ecosystem which take care of the water, soil, and forest flora and fauna.

Research and the development of new and native species of plants in the Canton of Santo Domingo are not making progress. The ecosystem is more vulnerable to deforestation and uncontrolled settlement.

Environmentalists From Native Communities Trained

95WN0096B Quito *EL COMERCIO* in Spanish
26 Jan 95 p C2

[FBIS Translated Text] The indigenous people of Ecuador will no longer be just observers. Now they will be in a position to take care of and to demand, with knowledge of the matter, a certain respect for their homes: nature.

Last week 24 parabiologists of the indigenous communities of the Shuara, Chachi, Amazon Quechua, Cofan, and Afroesmeraldan communities, as well as settlers and people from other groups, were graduated as environmental specialists.

The idea was born in view of a real need: the more formal inclusion of indigenous communities in the ecological research now being carried out in their territories and with knowledge of the biodiversity of their surroundings.

In general in the past, when field studies were made, researchers relied on the participation of members of the indigenous community. They received informal training for carrying out their specific and temporary functions.

Despite that, the relationship between scientists and indigenous communities had some inconvenient aspects. One of them was the lack of understanding by the local people of the objectives of the research.

Furthermore, a great deal of traditional knowledge was under utilized. That is, it was not used for the benefit of either the research or the indigenous communities. This knowledge includes the use of plants, the protection of animals, and seasonal cycles for hunting and fishing.

A parabiologist has been defined as a local person supported by the indigenous community. This person has a calling for and interest in conservation. He or she would be technically qualified to carry out the work of inventorying, monitoring, and managing the natural resources of their communities.

Esteban Suarez, program coordinator and a member of Ecociencia [the Ecological Science program], points out that the principal objective of the parabiologist project is the preservation of traditional knowledge. Another objective is generating community self-management in the conduct of projects related to their surroundings.

Ecociencia and Subir [the Promotion of Knowledge program] are nongovernmental organizations [NGO's] that promote the development of small-scale projects of ecological tourism, especially in the Amazon area and in the Province of Esmeraldas. When these take place and with the income obtained,

the indigenous communities can contract for the services of a parabiologist. The parabiologist would be in charge of monitoring the effects that tourist activity, for example, causes in his or her community.

The second phase of the project is the direct participation of the parabiologists in monitoring tasks. This phase will begin in the next few days in each zone.

This work will not be undertaken in isolation. It will have the support of researchers who will advise the parabiologists in the collection and codification of the data obtained.

The use of information will take place at two levels: the local community and scientists and researchers.

The parabiologists are potential community leaders. Suarez said that they will have an important role in insuring that local residents understand the importance of managing the information obtained.

The funds obtained will be used in the first phase of the Subir program, which is also supported by CARE [Cooperative American Relief Everywhere]. Eight instructors supervised the two workshops. Three of the instructors were charged with project development.

The salary of the first indigenous environmentalists will come from resources provided by the education program.

Program Features

Contents: Basic concepts were presented on ecology, conservation, biodiversity, and the environmental problems of Ecuador.

Practical Work: Activities such as applying techniques for the measurement of environmental factors (temperature, altitude, rainfall, and humidity).

Functions: Participants joined in activities involving the preparation of inventories and monitoring and managing natural resources. They will act as sources and transmitters of knowledge.

Selection: In principle a start was made with 51 persons who participated as field assistants. Then 24 were selected from among them. The suggestions of the researchers were taken into account.

SURINAME

Government Faces 'Strong Protests' Over Logging Contracts

FL0802154495 Bridgetown *CANA* in English
1722 GMT 7 Feb 95

[FBIS Transcribed Text] New York, Feb. 7, CANA—The government of Suriname is facing strong protests against logging contracts being sought by Malaysian companies to exploit the country's vast forest resources. Written appeals have been made to President Ronald Venetian of the former Dutch colony on South America against his government's approval of any such contract.

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The San Francisco-based Rainforest Action Network (RAN) and another non-government organisation, GRASU (Guyana Rainforest Association for Sustainable Use) located in New York, have separately communicated with the Suriname government objecting to the timber leases to five foreign companies that would cover some 25 percent of the country's forests. The objections point to massive dislocation of local inhabitants who have not been consulted in the concessions currently being considered and claimed environmental degradation by the Malaysian and Indonesian companies concerned. The protest letters

have also been sent to the international financial institutions and United States Vice President, Al Gore. The NGO's claim that the Asian companies seeking the logging contracts also have a bad track record in human rights abuses of indigenous peoples in their own countries.

Suriname, which borders Guyana—another Caribbean country where a leading foreign company, Barama, has come under criticism for a contract awarded by the previous People's National Congress (PNC) government—is soon to join the now 13-member Caribbean Community (Caricom).

INDIA

Delhi Emerges as 'Major' Center for Wildlife Smuggling*BK0802142895 Delhi INDIAN EXPRESS in English
4 Feb 95 p 2*

[Report by Shailendra Kumar]

[FBIS Transcribed Text] New Delhi—Delhi has emerged as a major transit centre for smuggling in wildlife products over the years. The evidence which points to this new-found status of Delhi comes from the series of police seizures of faunal products.

An index of the gravity of the problem is the number of seizures and the quantum of smuggled wildlife products. In the last four years, the Delhi Police has made 25 big seizures recovering 153 leopard skins, 39 tiger skins, 200 kg of tiger bones, 796 desert fox, 250 desert cat and 1,484 snake skins.

In January this year alone, there were two major seizures. Still, they do not reflect the overall magnitude of the problem since a large number of cases go undetected. Agrees the DCP [Delhi Constabulary of Police] (Crime), Mr Qamar Ahmed, who last week seized 1,018 skins of the fast-disappearing desert fox and desert cat, "Delhi has indeed become a major collection centre of smuggled wildlife products because of two reasons. Its commercial status and proximity to major national parks like Corbett, Ranthambhore and Sariska."

The report submitted last year to the Ministry of Environment and Forest [MEF] by the Subramanian Committee, set up to suggest measures to curb illegal trade in wildlife products, says that because of the dwindling wildlife species in South-East Asian countries, pressure on Indian wildlife has increased manifold.

India seems to be paying for its conservation successes of 70's and 80's. Till a few years back, China, Korea and Taiwan were able to meet the demand for tiger bones with tigers of Siberia, China and South-East Asia.

Now with the significant fall in the tiger population in these areas the onslaught of the trade has turned towards India.

The Subramanian panel report reveals that in 1993, an undercover investigator was offered an order of 1,000 kgs of tiger bones, the product of 70 to 80 tigers within two months.

In the swoop that followed 400 kgs of tiger bones were seized within two days. The national seizure of tiger bones in 1993 was of 667 kgs.

Demand for Rhino heads is the greatest threat to its existence. During 1992, the Rhino toll from poaching was one per week, and in early 1993, it rose to 1.8 Rhino per week, the report says.

There are also reports of bear paws being smuggled to China where they are used in gourmet cuisine. The MEF

has also got information about frogs' legs being smuggled to Bangladesh and then exported to Western countries.

What has fuelled the sudden spurt in the wildlife trade, is the astronomical prices the wildlife products get. The price of a single Rhino horn in Assam ranges between Rs 4 to 5 lakhs. The international price of musk is estimated to be \$45,000 per kg.

A senior Environment Ministry official says that the illegal trade in flora and fauna is next in size only to the trade in narcotics, and may equal that in armaments.

The Subramanian panel report says that till a few years ago, the monetary value of the international trade in wildlife was placed at \$6 billion. But in recent years, the figure has shot up to \$20 billion.

It is believed that India's share in the global trade has significantly gone up but a concrete figure has not been worked out as yet.

Mr Ashok Kumar who was the secretary-member of the Subramanian panel says that unfortunately, the ban on trade in wildlife products did not coincide with an equally rigorous enforcement effort and intelligence gathering mechanism in the country.

To curb the growing menace of the wildlife trade, the report has recommended a number of measures like a central data bank on wildlife offences, special teams of armed personnel and frequent raids on clandestine selling points.

"The Ministry has been so tardy in implementing the measures suggested by the experts that the problem has further aggravated," says Mr Ashok Kumar.

Court Closes Down 30 Bengal Units for Pollution Violations*BK0902022495 Delhi THE ECONOMIC TIMES
in English 4 Feb 95 p 1*

[FBIS Transcribed Text] New Delhi 3 February—The Supreme Court has, in landmark judgment on Friday, directed immediate closure of 30 units in West Bengal for failure to meet pollution control standards.

The defaulters belong to several large companies, including Hindustan Lever, Birla Jute, Andrew Yule, Brooke Bond Lipton India Ltd.

Mr Justice Kuldeep Singh and Mr Justice N Venkatchaliah have also ordered the district magistrates and superintendents of police of the areas concerned to ensure compliance of the orders.

The court passed the order on a Public Interest Litigation petition filed by Mr M C Mehta, a Supreme Court advocate.

The court passed the order on evidence furnished by the West Bengal Pollution Control Board, which pointed out that 30 units had not provided pollution control devices as per the specified norm.

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The Board, however, submitted that the units may be given two months more. The suggestion was shot down by Mr Mehta, who pointed out that the units had been given several opportunities—the latest being on November 25, 1994—to install the notified pollution control devices.

The units include Universal Paper Mills, Midnapur; Jaishree Textiles, Hooghly; Andrew Yule and Co, Kalyani Naidia; Birla Jute and Industry Ltd, Birlapur, 24 Parganas; Hindustan Lever Ltd, Calcutta; Reckitt and Coleman India Ltd, Asansol, Burdwan; India Garment Mint, Calcutta; Titagarh Jute Factory, Titagarh, 24 Parganas; Hindustan Wire, 24 Parganas; Jessop and Co, Calcutta; Black Diamond Beverages, Calcutta; Brooke Bond Lipton India Ltd, Shyam Nagar, 24 Parganas, Koalmark Chemicals Ltd, Kalyani; Allied Resin and Chemicals Ltd; Jenson and Nicholson, 24-Parganas.

Wednesday's judgment follows inaction on behalf of the ministry of environment and forests, which had more than one-and-a half years ago threatened to close certain identified units if they did not meet the prescribed standards by December 31, 1993.

It may be recalled that the ministry had, in line with Section 5 of the Environment Protection Act stated that it could shut down units, and cut their water and electricity connections, if they did not comply with the prescribed standards. The then Central Pollution Control Board chairman, Mr D K Biswas, had publicly stated that in addition, fines and legal charges would be also imposed on defaulters.

This deadline had been in the wake of deferment by environment minister, Mr Kamal Nath, of an earlier deadline of December 31, 1991, set by his predecessor, Ms Maneka Gandhi. He had created two categories—the first comprising those units set up before May 16, 1981, and the other of those set up thereafter. The latter category, consisting of newer units with supposedly more modern technology, was to comply with the standards by December 31, 1992. The older units were given one more year.

By early last year, it was clear that dilution in the ministry's stand was again in the offing as many defaulters had sent in timebound plans for installation—ranging from March 1994 to 1997.

Environment Ministry Halts Jaipur Steel Plant Construction

*BK0902021795 Madras BUSINESS LINE in English
4 Feb 95 p 1*

[FBIS Transcribed Text] New Delhi, Feb. 3—The Environment Ministry on Friday said it had directed Mideast Integrated Steel Ltd to stop all construction activity at its Jaipur mini-steel plant till the project gets environment clearance.

However, officials of the company said that it is not setting up any steel plant in Jaipur. An integrated steel plant is coming up at Daitari in Orissa. Work at that plant is going on as usual, company sources said.

A press note issued by the Ministry said the company has been asked not to enter the capital market till the project gets environmental clearance. The company has been advised not to float any public issue or rights issue till the matter is approved, it said.

The Ministry had asked for certain information when the company came out with a public issue but this was not furnished, the note said. The company went ahead with the public issue without taking environmental clearance, it added. However, company sources said Mideast had obtained "all the necessary no objection certificates" from the Orissa Government. The Union Environment Ministry had also accorded in principle clearance to the project, they added.

The State Government had accorded its clearance through an office memorandum (dated August 4, 1994) issued by the State Pollution Control Board of Orissa. A letter dated September 23, 1992, from the Principal Secretary to the Orissa Chief Minister states that "... in view of the fact that extensive pollution control measures including planting of a green belt around the acquired area (for the plant) are planned and this area has in principle clearance from the Ministry of Environment, Government of India, we do not anticipate any obstacles in clearance of your project subject to your complying with the laws in force."

The note issued by the Ministry on Friday said that a letter had been sent to Mideast Integrated Steel to point out that the proposed project is of sizable capacity and is likely to have significant impact on the environment. Company sources confirmed that a letter from the Ministry, dated January 19, 1995, was received. The company had replied to it four days ago, they added.

The Ministry had, in its letter, said that "any new steel plant with coke oven should go in only for dry quenching, as the dry process is not only energy efficient but avoids generation of toxic effluents. The adoption of wet quenching with the BOL plant for the above project is, therefore, not acceptable." As the company was importing coke from China, there was no ground for this objection, company sources claimed.

"We are an environment friendly company. If we have to go for the quenching process, we will go in only for dry quenching," the sources said.

Asked to respond to the Ministry's missive, a senior official of the company said it could either be a misprint or mischief.

He said the company will take up the issue with the Ministry of Environment and Forests.

The Managing Director, Mrs. Rita Singh, was out of station and was, therefore, not available for comment. Senior Government officials also refused to comment.

Mideast Integrated Steels Ltd, promoted by Mideast (India) Ltd. is setting up a 0.5 million tonnes per annum plant for production of rounds, bars, structurals and cold pigs. It is a joint venture with CMIEC of China.

PAKISTAN**Minister Reports Tanneries Severely Polluting Coastal Area**

*BK0902131995 Karachi DAWN NEWS SERVICE
in English 1200 GMT 7 Feb 95*

[Received via Internet]

[FBIS Transliterated Text] Islamabad, Feb. 2: Tanneries in Korangi area of Karachi are directly discharging an estimated 6,000 cubic meters of hazardous waste daily into the sea, federal minister for social welfare and special education Dr Sher Afgan told National Assembly on Thursday [2 February].

Responding to a call attention notice the minister admitted that the discharge of untreated municipal and

industrial effluent in the sea is all acute and persistent problem of the city of Karachi.

Presently there are only two old sewage treatment plants which are grossly inadequate to meet the needs of the population and the industries, he said.

The sewerage disposal system in the area of Korangi where the tanneries are located is also not linked with the city's sewerage system and as a result of the effluent is discharged directly into the sea, he added.

The government has already taken cognisance of the problem of the disposal of untreated tanneries effluent from Korangi area into the sea and has developed a project for the establishment of a central treatment plant at an estimated cost of Rs. 268 million in collaboration with the Tanners Association. The Karachi Metropolitan Corporal KMC and Sindh Environmental Protection Agency.

RUSSIA

Security Council To Ask Yeltsin To Repeal Toxic Waste Edict

LD0602165795 Moscow Radiostantsiya Ekho Moskvy in Russian 1300 GMT 6 Feb 95

[FBIS Translated Text] Our radio station has learned that on 8 February Oleg Lobov, secretary of the Russian Security Council, is going to send a letter to President Boris Yeltsin, asking him to repeal an edict allowing radioactive waste to be brought into Russia. You may recall that on 25 January Boris Yeltsin signed an edict on state subsidies for the nuclear industry in Krasnoyarsk Kray, which contradicts a law of the Russian Federation on the protection of the environment.

Usinsk Oil Cleanup Unlikely To Be Finished by Spring

LD0502222795 Moscow ITAR-TASS World Service in Russian 2143 GMT 5 Feb 95

[By ITAR-TASS correspondent Viktor Makarov]

[FBIS Translated Text] Usinsk (Komi Republic), 6 Feb—Plans to clean up territories polluted as a result of the accidents on the oil pipeline in the area of Usinsk run the real risk of not being fulfilled by 1 April. In springtime, during high water, oil products may find their way into the River Pechora and Barents Sea.

Elimination of the aftermath of the accidents that occurred in August-September last year on the oil pipeline near Usinsk is going at an unsatisfactory pace. At the time, ruptures in the pipeline caused the leak of more than 14,000 tonnes of oil, and 64 hectares of territory was polluted with oil products, mainly poorly accessible areas in boggy tundra. So far, according to the oilmen themselves, hardly more than eight hectares of polluted territory has been cleaned up.

The order of the Commission for Emergencies of the Komi Republic to organize work round-the-clock to eliminate the aftermath of the accidents on the oil pipeline near Usinsk has not yet been carried out. The cleaning-up work slows down sharply at weekends.

On Sunday work was completed by a special commission that visited Usinsk and the route of the oil pipeline to assess the situation as regards eliminating the aftermath of the accidents. Today its report will be heard by the Commission for Emergencies of the Komi Republic. It is thought that it will work out a number of measures to urgently speed up the cleanup of territories near Usinsk that are polluted with oil products.

Deputy Minister Denies Pollution Threat From Chelyabinsk-65

LD0502215895

[FBIS Editorial Report] Moscow Radio Rossii Network in Russian at 1700 GMT on 5 February broadcasts a three and a half minute report from the Japanese agency Kyodo

Tsushin on the threat of an overflow of radioactive waste from the Karachay special storage lake at the Mayak plant in Chelyabinsk-65. Radio Rossii correspondent Veronika Gerasimenko asked Nikolay Yegorov, Russian deputy minister for atomic energy how much truth there was in this report. Gerasimenko said that "the situation at the Mayak production association in respect to the storage of radioactive waste is being monitored and at the moment presents no danger to the population and the environment."

He goes on to say that it would not become dangerous even during the possible spring floods in 1995, and that the Japanese media worries were groundless.

However, Greenpeace representatives believe that there is a threat of pollution by radioactive waste from the Karachay lake to small nearby rivers and underground springs. The money assigned to the Mayak plant for measures to ensure ecological safety is being used to build new facilities at the plant.

Aleksey Yablokov, chairman of the interdepartmental commission for ecological safety, does not believe that this information is true, and thinks that the people working at this enterprise are honest people.

However, in Chelyabinsk-70, also known as Snezhinsk, Nikolay Shur, head of an ecological monitoring laboratory, measured a site near a kindergarten, which showed a radioactivity level 20 times higher than the natural background level. He spoke about this on local radio and not long after was placed in solitary confinement for investigation.

Usinsk Oil Pipeline Reopens Despite Danger of Accidents

LD0502213395 Moscow ITAR-TASS World Service in Russian 1707 GMT 5 Feb 95

[By ITAR-TASS correspondent Viktor Makarov]

[FBIS Translated Excerpt] Usinsk (Komi Republic), 5 Feb—Work has resumed on all oilfields in the Komi Republic and in the Nenetskiy autonomous okrug. It had to be suspended on 23 January because of an accident at an old 50-kilometer section of a main pipeline near the town of Usinsk. Work on oilfields could be renewed because of the opening on 1 February of a new pipeline, which has been transporting crude oil to main refineries near Usinsk since then. [passage omitted]

The critical situation on northern oilfields in the Komi Republic and the Nenetskiy autonomous okrug has been eliminated with the introduction of the new Vozey-Terminal pipeline, but the threat of another accident remains. According to unofficial information available to experts, the joint stock company Komineft still has quite a few aging pipelines. Russia's State Committee for Technical Supervision and the Commission for Emergency Situations in the Komi Republic had instructed Komineft to inspect all its pipelines and submit proposals on safety precautions and environmental protection before 1 January 1995. However, this has not been done. Therefore, Russia's State Committee for Technical Supervision has

decided that on 7 February it would look into the question of safety precautions on Kominet pipelines to determine measures to avert any further major accidents.

Ecological Safety Commission on Radioactive Waste Stocks

95WN0085A Moscow *SEGODNYA* in Russian
26 Jan 95 p 9

[Article by *SEGODNYA* Correspondent Veronika Romanenkova, under the rubric: "Surrounding the Atom": "The Mass of Radioactive Wastes Exceeds the Number of Plans To Salvage Them"]

[FBIS Translated Text] At the present time, tens of billions of cubic meters of radioactive wastes have accumulated at enterprises of the RF Ministry of Atomic Energy, the Navy and Merchant Fleet and at scientific research institutions. A system of burial grounds has still not been created for their burial in Russia. On Tuesday, a session of the RF Security Council Interdepartmental Commission for Ecological Security was devoted to this circumstance.

Right now radioactive wastes are being collected and sorted, reprocessed and then stored at the enterprises where they were produced. But, in the opinion of the experts, the most acceptable and safe radioactive waste storage technique is to convert them into a solid compound followed by deep burial. Today, three Ministry of Atomic Energy enterprises—Gorno-Chemical Combine (Krasnoyarsk-26), Siberian Chemical Combine (Tomsk-7), and the Scientific-Research Institute of Nuclear Reactors (Dimitrovgrad)—are doing that. Approximately 46 million cubic meters of radioactive nuclides with a total radioactivity of 2.2 billion Curies have been removed to burial ground reservoir beds. Underground burial areas occupy an area of approximately 24 square kilometers.

After burial ground operations have been completed, they must be preserved based upon a special technology whose development has only recently begun. But partial preservation is already being carried out.

Radioactive wastes (ZhRO [liquid radioactive wastes]) that are produced during the course of the operation and scrapping of nuclear submarines pose a separate problem. Right now 114 submarines have been removed from operation, the reactor cores of 37 of them have been unloaded, 11 submarines have been prepared for long-term storage afloat, and another eight have been scrapped and their reactor compartments have been cut out. In 1992, a ban was placed on dumping liquid radioactive wastes in certain areas of the seas that were at one time violated by a rather well-known incident in the Sea of Japan. So far, a decision has not been made to create liquid radioactive waste processing complexes in the Far Eastern and Northern regions. And their volume totals 18-20,000 cubic meters per year. The Pacific Fleet accounts for 40 percent of these wastes. Furthermore, by the year 2000, we must anticipate a 20-30 percent increase in the volume of radioactive wastes due to the scrapping of nuclear submarines.

Based upon a project that was completed in the 1950's, coastal liquid and solid radioactive waste reprocessing complexes consisted of concrete storage facilities for solid wastes and special water treatment for liquid wastes. The storage facilities that were built at the beginning of the 1960's are still being operated at the present time but are practically full. In the 1960's, special water treatment facilities were assembled at a number of Northern and Pacific Fleet bases but were never put into operation. As for the possibility of utilizing special tankers for liquid waste storage, experts view them only as an interim measure and consider it necessary to construct coastal maintenance facilities. Such a project has been developed but the entire matter is coming up against financing.

However, if you consider that 15-20 percent of the amount required for radioactive waste reprocessing and storage was allocated from the budget in the last two years, we can't count on increasing the appropriations this year. The Ministry of Atomic Energy's budget request has been compiled and takes into account only urgent work that threatens the emergence of emergency situations if it is not completed. That requires R144.5 billion.

Nevertheless, a Federal Program on the Issues of Dealing with Radioactive Wastes has been developed at the Ministry of Atomic Energy that is calculated on the next 10 years. First of all, it stipulates the development and introduction of a state radioactive waste accounting system and monitoring the insurance of the protection of the biosphere from the harmful effects of radioactive materials.

Later, they plan to carry out the conversion of all liquid and solid wastes into a compound that is suitable for safe storage, transportation and burial. So, they propose to conduct the preservation of open reservoirs that contain liquid radioactive wastes and old land-based solid waste storage areas: eliminate liquid radioactive waste storage tanks at "Mayak" Production Association, Gorno-Chemical Combine and Siberian Chemical Combine and convert liquid radioactive wastes that contain approximately one billion Curies of radioactivity into solid forms.

Furthermore, the program plans to conduct the selection of regions of Russia, create underground storage areas and burial sites for hardened wastes of the spent nuclear fuel reprocessing plant ("Mayak") and conduct experimental-industrial burial in permafrost rock of wastes that have accumulated on the Kola Peninsula and Bilibinskiy AES [Nuclear Power Plant].

Major Mercury Leak Contaminates Arkhangelsk River

LD0702160795 Moscow *Mayak Radio Network*
in Russian 0630 GMT 7 Feb 95

[FBIS Translated Text] Not many people believed that the Severnaya Dvina was actually contaminated with mercury when they first heard of it. But a well-attended news conference held yesterday finally clarified the whole thing.

[Begin Arkhangelsk chief public health officer Serina recording]

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Arkhangelsk: No mercury should be present in natural waters because this could result in all sorts of consequences. [end recording]

It is not just Arkhangelsk's chief public health officer Serina who is concerned over the matter, but many other experts, too. The point is that an incredible amount of mercury was found in the section of the Severnaya Dvina river where water is drawn from. Not grams, or kilograms or even quintals but as much as 16 tons of toxic mercury compounds which had leaked into the river from a local pulp-and-paper combine. But no tragedy happened. The town was not poisoned because the mercury moved further down-river. Nobody seems to know where it is now. Experts insist that the town is not in danger. Nevertheless, water supplies to some villages, where mercury had been found, were turned off. By the way, water supplies to one of the town districts were also stopped because traces of mercury had been found in the water. So, what happened in the end? The head of the Arkhangelsk committee for environmental protection simply advised everyone to buy water filters as soon as possible. Good, isn't it?

Seminar Told of Plans for New Reactors at Sosnovyy Bor

BR0702132495 Helsinki HUFVUDSTADSBLADET
in Swedish 4 Feb 95 p 5

[Report by Annika Hallsten: "New Reactors Planned for Sosnovyy Bor"]

[FBIS Translated Text] Ten new nuclear reactors will be built in Sosnovyy Bor, according to current plans. It is a question of two projects, which are not substitutes for one another, and it is about making new inroads on the international energy market. One of the 10 reactors—a pressurized water reactor—has been given safety guarantees from the German companies Siemens and GRS.

In addition there are plans for Russia, Germany, and France to cooperate in the construction of a recycling plant at Sosnovyy Bor.

"Is it a new international ambition to take advantage of the economic misery in Russia?" asked Ulla Klotzer, deputy chairman of the Green League.

The plans for the new reactors in Sosnovyy Bor were raised at a seminar in Helsinki on Friday [3 February]. Also present at the seminar was Oleg Bodrov who during the period 1976-80 worked on the testing of submarine reactors in Sosnovyy Bor but who is now working at an environmental institute in the town.

Bodrov too is now calling for an international discussion of the planned reactors.

"They are a potential danger threatening the entire Baltic Sea region," he said.

In Sosnovyy Bor, which is located 100 km from Finland, 80 km from the center of St. Petersburg, and 70 km from Estonia, there are seven nuclear reactors today of which four are so-called Chernobyl reactors, RBMK-1000

[high-power pressure-tube reactor], and three are test reactors for submarines. A fourth reactor intended for military purposes is under construction.

In addition there is a storage facility for nuclear waste.

Two major projects are thus now being planned which together would result in the construction of another 10 reactors in Sosnovyy Bor. In the first project the Leningrad's power station (which is the same as the Sosnovyy Bor power station) has entered into an agreement with 17 military industrial plants in St. Petersburg to build a new RBMK reactor before the useful life of the present reactors has come to an end.

The reactors would eventually be replaced by five new MKER-800 reactors (an improved version of the RBMK) and thereafter another three MKER [expansion unknown] reactors would eventually be built a few kilometers west of the present complex.

World Bank Warning

In other words there are plans to build another new RBMK reactor despite the fact that in a 1993 report the World Bank warned against these very reactors. They are considered the world's most dangerous reactors, among other things because they are without protective casings.

In a 1991 report the International Atomic Energy Agency, IAEA, stated that in the next five years the probability of a major accident was one to four if use of the most dangerous nuclear reactors continued as before.

The first of the planned reactors in Sosnovyy Bor would be taken into service in 2003 and the last in 2011. The major investor is the Leningrad power station, and this means that government funds are not needed.

Russia also has no nuclear energy laws and laws about final storage of radioactive waste. According to Iida Siimes from Finnish Greenpeace, the Russian Duma discussed proposed nuclear energy legislation as recently as last week, but the proposal was rejected.

The second project—that is, the construction of a pressurized water reactor—will begin this year if it becomes reality. This project has the support of the Russian state's nuclear energy oversight committee, Gosatomnadsor, and the Russian Environmental Ministry, GosComPriroda.

Waste Transport to The Arctic Ocean

Today the highly active nuclear waste from the plants in Sosnovyy Bor is stored in a complex just north of the reactors and approximately one km from the coastline of the Gulf of Finland. But there are plans to transport the highly active waste to Novaya Zemlya in the Arctic Ocean.

The transports would in that case go by sea.

Altogether it is a question of the final storage of 10,000 tonnes of spent, but extremely highly active nuclear fuel. By way of comparison it can be noted that Finland so far has sent barely 300 tonnes of radioactive waste to Mayak.

Mercury Pollution of Arkhangelsk River Continues*LD0802133995 Moscow ITAR-TASS in English
1316 GMT 8 Feb 95*

[FBIS Transcribed Text] Arkhangelsk February 8 TASS—Pollution of the Severnaya Dvina river with mercury compounds continues in the area of Arkhangelsk, a city in north-western Russia. Control services continue to register the presence of mercury ions in river water samples in small concentrations. They should not be present in river water at all under normal conditions.

Specialists who watch daily the state of water in the river detected mercury on January 30 for the first time. The first sample contained 740 critically admissible concentrations (cac) near the left bank and 640 near the right.

Mercury concentration dropped to 154 cac near the left bank in a sample taken on January 31. There was no mercury near the right bank. If we take into account that mercury should not be present in water under existing norms, 7.4 micrograms per litre of water can be regarded as an extremely high concentration.

The purification installations of the arkhangelsk pulp and paper combine situated in the city of Novodvinsk were the source of pollution. They continue "to feed" the Severnaya Dvina with mercury salts.

It will be remembered that about 16 tonnes of mercury compounds got into the combine's purification installations and then into the river as a result of one-time discharge in the past days of January.

The bulk of the toxic discharge was driven to the White Sea by the river current. However, a considerable part was absorbed by active silt at the purification installations.

According to a statement by Anatoliy Minyaev, managing director of the environment department of the Arkhangelsk region administration, it is impossible to close down the combine's purification installations, since sewage of all novodvinsk empties into them.

Another 50 tonnes of worked-out mercury-containing materials are stored on the grounds of the combine. Russia has no production facilities to regenerate mercury, while Ukraine where regeneration was done before, does not want now to accept foreign dangerous waste.

Scientist Says Dumping Ammunition at Sea Illegal*LD1002171095 Moscow ITAR-TASS in English
1550 GMT 10 Feb 95*

[By ITAR-TASS correspondent Mikhail Karlov]

[FBIS Transcribed Text] Moscow February 10 TASS—"The dumping of ammunition at sea is illegal. It runs counter to the Russian Law on Environmental Protection," corresponding member of the Russian Academy of Sciences Aleksey Yablokov, chairman of the Interparliamentary Commission for Ecological Safety at the Russian Security Council, told ITAR-TASS on Friday.

This statement was made in connection with the fact that 600 tonnes of scrapped ammunition was to be dumped into the Sea of Japan by Russia's Pacific Fleet on Friday. High naval officials believe that such an action is safe and is generally accepted in world practice.

The latest burial of ammunition at sea was effected by the USSR and its allies in the Baltic and the North Seas immediately after the Second World War, Yablokov said.

Not a single country has resorted to such actions since that time. "Ammunition reaching seabed can remain there without any adverse effect for dozens of years. Also, for a variety of reasons it may precipitate an ecological disaster any time", Yablokov said.

Smolensk Oblast Air Quality Deteriorates*MM0902155195 Moscow PRAVDA in Russian
9 Feb 95 p 4*

[Report by Viktor Artemenko: "What Does the Oxygen Smell of?"]

[FBIS Translated Text] Smolensk—Smolensk Oblast ecologists have sounded the alarm: There has been a catastrophic increase in atmospheric pollution in the oblast.

"The situation in Smolensk is alarming," V. Petukhov, chief of the Center for Hydrometeorology and Environmental Monitoring, said. "Thus, the level of benzopyrene in the air is 3.6 times the permissible norm. This Grade I toxic element causes malignant tumors. Respiratory and circulatory diseases are the most widespread in the region."

"There used to be three places in the oblast where atmospheric samples were taken, there is now one," Petukhov continued. "There is not the money to maintain them. Our collective is desperate—the center has 135 million rubles of debt 'looming' over it. The Service for Hydrometeorology and Environmental Monitoring only provides us with 45 percent of our funding. The chemical laboratory has been shut down, many highly qualified specialists dismissed, and the number of surveys squeezed to the minimum. We cannot pay for or resume the work of monitoring the state of the air and the level of contamination of rivers and reservoirs—at least at previous levels."

River Ob in Danger of Pollution Downstream From Bernal*LD0902135995 Moscow Ostankino Television First
Channel Network in Russian 1152 GMT 9 Feb 95*

[From the "Novosti" newscast]

[FBIS Translated Text] The Siberian river Ob has become a source of increased danger for towns situated downstream of Bernal. The reason for a possible state of emergency lies in the fact that because of the late purchase of chlorine the purification of sewerage in Bernal has been stopped since 24 January. The kray center of Gos-sanepidnadzor [state agency for supervision of public

health and epidemics] believes that the situation, which involved a potential threat to the health of many Siberians has turned into a real one.

Locals Protest at Dumping of Toxic Waste in Petersburg

MM0902113195 Moscow TRUD in Russian 8 Feb 95 p 1

[Report by Dmitriy Struzhentsov under "That's News" rubric: "Present From France. Not From Dior, Alas"]

[FBIS Translated Text] St. Petersburg—Some days ago a protest action was staged outside the French Consulate in Petersburg over the fact that a large consignment of highly toxic waste, which came into Russia from the Union Miniere firm in France, had ended up in the city on the Neva at warehouses of Baltic customs and the Gumilat plant. Of course, this waste, which contains arsenic, selenium, germanium, cadmium, and thallium, could not have reached Russia without authorization from the government or high-ranking officials. The waste should have passed through Russia in transit, instead of which it has landed in Petersburg, and what is more not far from the Torgaemovoshch enterprise. God forbid, as they say, that this toxic cocktail should get into the enterprise's base, where seed is stored, and then be spread throughout the country. This could quite easily happen, because the waste is being stored in the open air, and what is more in perishable packaging.

The action held outside the French Consulate by Petersburg Greenpeace activists yielded no result. But the Federation of Petersburg and Oblast Trade Unions has now sent a letter to Russian Federation Government Chairman Viktor Chernomyrdin strongly protesting about the disposal in the city of highly toxic waste that is very harmful to people's health. The trade unions are demanding that the French "gift" be removed from the territory of the city and oblast immediately and that those responsible for the waste's appearance on the banks of the Neva be called to account.

St. Petersburg Mayor Anatoliy Sobchak, the Russian Federation interdepartmental commission on ecological security, and the Russian Ministry of the Environment and Natural Resources have been notified of this occurrence.

Mercury Contamination Continues To Register Near Archangel

LD0702224595 Moscow ITAR-TASS World Service in Russian 1845 GMT 7 Feb 95

[FBIS Editorial report] Moscow ITAR-TASS World Service in Russian at 1845 GMT on 7 February carries 500-word report by Vladimir Anufriyev on mercury pollution in the waters of the northern Dvina area near Archangel. Reception is good.

The report begins noting that instruments continue to register the presence of small concentrations of mercury ions in samples of river water. Anufriyev notes that under normal circumstances there should be no ions in the samples.

The correspondent states that mercury salts continue to come into the river from the purification plant of the Archangel Pulp and Paper Combine in Novodvinsk. He says that 16 tonnes of mercury compounds had been leaked into the river by the end of January, with a concentration level from these toxins exceeding the permitted limit by 740 times.

Anufriyev says: "The main mass of the toxic discharge was taken by the current into the White Sea; however, a significant amount was absorbed by active silt at the purification plant."

He then states that according to Anatoliy Minyayev, the general director of the Department for Protection of the Environment and Natural Resources of the Archangel Region Administration, it is impossible to close the purification plant because it takes effluent from all of Novodvinsk. Minyayev says: "There are no plants left in Russia for the regeneration of mercury. And Ukraine, where this used to be done, does not now want to take other people's dangerous wastes."

Light Water Reactors To be in Use by 21st Century

LD0702212295 Moscow ITAR-TASS in English 1825 GMT 7 Feb 95

[By ITAR-TASS correspondent Veronika Romanenkova]

[FBIS Transcribed Text] Moscow February 7 TASS—Worn-out reactors of Russian nuclear power plants will be replaced by advanced water-moderated reactors with the capacity of 640 or 1,000 megawatts, concluded a meeting at the Russian Ministry for Nuclear Energy that discussed today the fulfilment of a program for development of new generation of reactors for nuclear power plants.

Light water reactors will play the key role in the 21st century. Their worked out and processed fuel will be sent to nuclear power plants with channel-type reactors, which are the next generation of high-power channel-type reactors - low-power channel-type reactors.

With the exception of the Chernobyl accident, graphite reactors have proved to have high production and technical characteristics. Plutonium worked out by low-power channel-type reactors will be supplied as a fuel for fast-neutron reactors and the cycle will become closed.

The meeting noted that possible location of new reactors will be Sosnovy Bor of the Leningrad region, Novovoronezh, Kola and Far East.

Worn-Out Section of Usinsk Oil Pipeline Replaced

LD0702205295 Moscow ITAR-TASS in English 1745 GMT 7 Feb 95

[By ITAR-TASS correspondent Igor Ivantsov]

[FBIS Transcribed Text] Moscow February 7 TASS—The worn-out section of the Vozey-main facilities oil pipeline, the Usinsk area, has been put out of operation. The new pipeline with a length of 46.6 kilometers has become

functional, First Deputy Chairman of the Russian State Technical Inspection Yevgeniy Malov told ITAR-TASS today.

In his words, a meeting at the technical inspection has focused on the state of the Usinsk oil pipeline and its safe operation. Experts and specialists from various departments recommended a technical examination of all Komi pipelines in order to schedule the replacement of worn-out sections.

They think that Komineft should dehydrate raw oil in cesspools in order to prevent pipeline flaws in future. The majority of flaws were caused by excessive content of water and salts in the pumped oil. Komineft is also planning to construct an additional pipeline section with a length of about 150 kilometers by 1996.

Environment Ministry: 'No Danger' to Dumping in Japan Sea

*LD1302161795 Moscow ITAR-TASS in English
1259 GMT 13 Feb 95*

[By ITAR-TASS Correspondent Mikhail Karlov]

[FBIS Transcribed Text] Moscow February 13—The Russian Environment Ministry believes there is no danger if the Pacific Fleet dumps conventional munitions in the Sea of Japan, however, reminded that old shells and bombs could be used as scrap and in the chemical industry.

"If the decommissioned munitions are not nuclear or chemical and are dumped at a sufficient depth, they would pose no major ecological danger", TASS was told on Monday by Viktor Kutsenko, first deputy head of the Ecological Department of the Environment Ministry, who added that the Fleet Command did not consult the Ministry on the dumping.

Kutsenko stressed, however, that the metal coating of bombs could be used as scrap for any industry, while paints, which are in shortage in Russia, can be produced from the filling. "The dumping of such munitions is economically detrimental to the country", he said.

The Pacific Fleet announced it was going to dump some 600 tonnes of decommissioned munitions in the Sea of Japan.

Nature Ministry Collegium Meets on Ecology

95WN0087A Moscow SEGODNYA in Russian 2 Feb 95 p 9

[Article by Dmitriy Frolov: "The Ministry of Environmental Protection Revealed the State's Ecological Policy—and, as Always, the Situation Is 'Extremely Grave'"]

[FBIS Translated Text] This is at least the second time the annual collegial meeting of the Russian Minprirody [Ministry of Environmental Protection and Natural Resources] has begun with the report that the level of environmental pollution is still unacceptable despite the considerable decline of production. After refuting the common assumption that every cloud has a silver lining with this statement,

Minister of Environmental Protection Viktor Danilov-Danilyan called the situation "extremely grave." According to his report, one-fourth of the enterprises monitored by environmental protection agencies have increased their emissions, and 51 percent of all emissions are now produced by mobile polluters. The state of our water, especially our drinking water, has not improved at all, and as far as our land is concerned, we lost 1.5 million hectares of agricultural land alone last year. During that time the nation produced 122 million tonnes of toxic waste, and the amount of other types of waste is incalculable. If we add the mounting threat of radiation, the situation looks as dismal as ever. Furthermore, under these conditions the minister felt justified in saying that the Russian state had no hope of growing stronger in the absence of an ecological policy.

His reference to policy in this case signified fairly intense legislative activity. In this sense it was an outstanding year: A presidential edict approved the fundamental provisions of the state strategy of environmental protection and stable development, and the government approved a concrete plan of action for 1994-95. Minprirody participated in virtually all of the 96 projects listed in this document, and it was the executive director of 33 of them. In addition, the ministry drafted 11 federal programs in the past year, but only two were approved: "The Reduction of Levels of Human Irradiation by Natural Sources of Radioactivity" and "The Protection and Conservation of the Natural Resources of the Lake Baykal Basin." Another two programs are supposed to be under way, but the "Conversion—Ecology" program had to be discontinued for lack of funds, and the "Russia's Ecological Security" program is being implemented by only 50 percent.

In reference to the latter, Viktor Danilov-Danilyan said that it has been crushed by the weight of something on the order of original sin. Apparently, he meant the initial desire to encompass the unencompassable, accompanied by the ineradicable passion for a good bargain. This program, which includes 1,542 projects, has an estimated cost of 20.4 billion rubles. For the sake of comparison, the "Waste" program alone will cost 800 billion.

Last year the ministry continued its efforts to improve legal standards. In all, around 20 legislative bills were drafted. According to the minister, the Duma discussed at least one at each plenary meeting. The work of securing legal backing for the ministry's own activities was completed with the approval of the Statute on the Russian Ministry of Environmental Protection and Natural Resources and the drafting of a sample statute on its territorial agencies. It also continued its work on the economic mechanism of resource use. In 1994 the fees collected for resource use and environmental pollution amounted to almost 600 billion rubles. The institution of fees for new types of pollutants, according to experts, could increase the amount by 10 percent in 1995. The resources of the Federal Ecological Fund amounted to 19.766 billion rubles in 1994, it received 18.464 billion from territorial funds, and it spent 16.646 billion the same year on environmental protection projects.

As for the actual ecological monitoring that resulted in the collection of these billions, in 1994 territorial environmental protection agencies conducted 36,000 air quality studies, 61,000 water quality studies, and 45,000 inspections to verify the observance of land use standards. Almost one-third of the inspections of the handling of waste by industrial production units revealed violations, and more than a thousand "pirate" dumping sites were discovered.

To the regret of the organizers of environmental protection projects, it is this part of their activity, and not their diverse and painstaking work in the sphere of legislation and regulation, that is most comprehensible and desirable to the average taxpayer. If this taxpayer knows that only half of the enterprises are being monitored in any way at all, and if he also learns that budget allocations for 1995 constitute just over 50 percent of the projected requirements, he will not have any illusions about the possibilities of ecological policy. He is more likely to doubt that any such policy is being pursued—by environmental advocates or the state, especially in view of the fact that ecologists have not been projecting the image of "decision makers" recently, but seem to be on the periphery of the very events that affect them directly. The recent Usinsk saga provided evidence of this. A subdivision of Minprirody knew about the oil spill before anyone else, but the ministry was almost the last to comment on the event and assess the damage. There was no delay in the comments on the case of the burning oil storage tank in Chelensk, but all of the discussions of the past and present implications of this are still on the level of conjecture. It does not take an experienced analyst to come up with an unequivocal interpretation of the absence of a representative from Minprirody on the Security Council at a time of environmental crisis in the country.

Even unofficial ecologists are capable of damaging the reputation of the official protectors of the environment under present conditions. The yellow balloons the Greenpeace activists launched into the sky over St. Petersburg were seen by almost everyone in Russia on television. This demonstration contradicted the official expressions of contentment in connection with Russia's ratification of the Basel convention on the control of trans-border transfers of hazardous waste. Few of the viewers realized that professional ecologists had known about the contaminated areas in St. Petersburg, but were powerless to do anything about them because current legislation obstructs the return of waste products sent here as raw materials. The majority were left with the impression that no one but a few "Greens" is concerned about this.

Epidemic Danger Extends Far Beyond Chechnya

MM1402124795 Moscow KRASNAYA ZVEZDA
in Russian 14 Feb 95 p 1

[Article by Stanislav Telegin: "'Hot Spots' of North Caucasus: How Can a Possible Explosion of Epidemics Be Averted?"]

[FBIS Translated Text] According to data from epidemiology specialists, this region of Russia is currently on the threshold of not just an ordinary outbreak, but a real

explosion of epidemics. And the point is not just that disease always roams free in places where there is war. The reason for the imminent epidemics is deeper. First and foremost, it must be said that most of the territory of Chechnya and the North Caucasus as a whole is a natural source of plague and other dangerous infections. In recent decades a certain equilibrium has formed in nature here, and the diseases have not emerged. However, the latest data testify that the existing balance is starting to be disrupted. Just remember last year's cholera outbreak in Dagestan.

But as far as Chechnya is concerned you have to bear in mind that the state sanitation and epidemiology service and health protection service have been destroyed in the republic in the past two years, and the vaccination of the population has been discontinued. There is also no veterinary service—which has led to a massive number of anthrax, tuberculosis, and tularemia cases among livestock. The Russian State Sanitation and Epidemiology Inspectorate has information at its disposal to the effect that on the territory of Grozny alone there are four burial sites containing the remains of livestock which died of anthrax. If these are scattered by a shell landing on them, for example, then a huge disaster will be inevitable. But it is impossible to find and localize them, as there is no documentation available about them whatsoever.

The existing water supply arrangement presents great danger. Even in the cities of Grozny, Gudermes, and Argun the water main is not working—there are no reagents or preparations for purifying the water. In other places people use open water sources in general.

Then there is the actual war itself. This means bodies left in the streets and a large number of migrants in insanitary conditions. But specialists are naming the stress that is gripping the majority of the population as the most terrible consequence of the war in the sense of epidemiological danger. It affects the immune system, and people become defenseless against any infection.

Naturally, today's sanitation and epidemiological situation in Chechnya conceals a danger not only for the population but also for all the Russian servicemen performing their duty there, particularly with the advent of milder weather. Although it is clear that outbreaks of disease are unavoidable, the Russian State Sanitation and Epidemiology Inspectorate is doing all it can today to reduce the level of danger.

Unfortunately, it is only possible to adopt any measures at all on the territories controlled by the federal troops or the anti-Dudayev opposition—which inevitably reduces their effectiveness. Nevertheless, it has been possible to do something. Two sanitation and epidemiology installations have been formed at Znamenskoye and Naurskaya. They are designed to be bases for developing a service throughout the republic. A special antiepidemic detachment of over 40 specialists has been launched in Tolstoy-Yurt. They are all from the Stavropol Anti-Plague Institute. It is planned to create another four detachments like this before the warm weather arrives. Over 33,000 vaccinations against diphtheria and other controlled infections have been given to the population.

Clearly, all this costs a great deal of money. So far, 700 million rubles [R] of the 1 billion allocated by the Russian Federation Ministry of Finance for this year has been spent on the needs of the sanitation and epidemiology service in Chechnya. In all, according to estimates made by Yevgeniy Belyayev, chairman of the Russian State Sanitation and Epidemiology Service, it will cost R33 billion to fully restore the service.

Today a lot of people are worried about the danger of the infection spreading outside Chechnya. This danger really does exist. That is why territories adjacent to the republic have been categorized as zones of risk: Dagestan, Kabardino-Balkaria, North Ossetia, Ingushetia, and Stavropol and Krasnodar Krais. Preventive measures against particularly dangerous infections and other mass diseases are being actively conducted there at present. As migrants form one channel of infection, precautionary measures adopted in the more distant regions are not out of place.

Of course, the "hot spots" are the most liable to break out in epidemics. But today the situation in Russia is such that regions which even yesterday were relatively safe are being placed within the risk zone. And this is not just connected with the migration of the population from crisis areas. The substantial reduction in the level of health protection and sanitation inspections is also tending to cause a deterioration in the epidemiological situation. A shortage of money for buying medicines, preparations, and equipment, for paying specialists, and for transportation is apparent everywhere.

A few days ago Chelyabinsk Oblast introduced sanitary checks on its borders, for instance. As Aleksandr Gavrilov, the oblast's main state sanitation physician, stated, the epidemiological situation in the southern Urals has become far more problematic recently. In this connection, sanitary and quarantine centers are now being created in a number of rayons. One of these will operate around the clock at Chelyabinsk airport.

But the main point, of course, is to resolutely improve things in Chechnya itself. For this purpose, clean water must be supplied to the population, the full activity of preventive treatment and sanitation and epidemiology installations and the veterinary service must be restored, the extensive sale of soap, detergents, and disinfectants must be established, and mass vaccinations for the population must be organized as soon as possible. Otherwise disease will sweep over Chechnya. And not Chechnya alone.

Deliberate Pollution Harms Vladimir Water Supply
MM2811154194 Moscow ROSSIYSKAYA GAZETA
in Russian 26 Nov 94 First Edition p 1

[Report by Yuriy Shatalov: "City Without Water. Health of Vladimir's 220,000 Residents at Risk As Result of Criminal Negligence and Cynicism of Ivanovo Economic Managers"]

[FBIS Translated Text] In early October the people of Vladimir had already been through one shock caused by

the threat by local blackmailers to poison with concentrated cyanide the water entering the oblast center's water network. But barely a month and a half after the arrest of the crooks—who failed to carry out their sinister plans—a new and real threat of water supplies to thousands of citizens being poisoned has emerged.

The city people saw the first signs of the disaster a week ago, when water in their apartments started smelling strongly not only of chlorine but of manure. It was impossible to drink it or use it for cooking. Clothes washed in it acquired the kind of smell that usually comes from dirty cattle yards.

On arriving in Vladimir, the specialists urgently called in from the oblast Nature Conservancy Committee, civil defense, the oblast and city administration, and representatives of the Russian Federation Ministry for Emergency Situations immediately flew off in a helicopter to survey the channel of the Nerl River, from where the contaminated water had entered the city's water supply. They did not discover on Vladimir Oblast territory a single more or less serious source of contamination of the river that supplies two-thirds of Vladimir's drinking water.

They decided to fly on further, to Ivanovo Oblast. And they were not wrong. In the region bordering Vladimir Oblast, they came across the Petrovskiy Liquor Plant, which was quite happily dumping large amounts of ammonia and waste water in the river. Further investigations took the team to the Petrovskiy Stockraising Complex, located virtually on the bank of the river. What the specialists saw there horrified them.

"The fitters servicing the equipment explained that they had been ordered to discharge the contaminant into the stream by the chief of the complex," Valeriy Vildyayev, the oblast administration's deputy head of ecology, said.

Having shut off the pipeline and compiled a report [akt] in the presence of representatives of Ivanovo Oblast, the Vladimir people set off home. But many of them were worried, and somebody suggested that they go back and check once more that the river was no longer threatened with contamination.... That is what they did.

You can imagine the surprise of the members of the operational team when they once again saw liquid manure flowing into the river. The workers who were present again claimed that they had been forced to do it by the chief of the complex. The pipe had to be blocked by means of a wooden plug. The head of the Vladimir Oblast Administration then demanded that his Ivanovo colleague take urgent measures to eliminate the sources of pollution to the Nerl River. Judging by everything, these measures have been taken, since the content of ammonia nitrogen in the river has fallen markedly. But the water reaching the city is still not usable. Consequently, the city authorities have organized supplies of pure water for all preschool institutions. Water purification installations are operating at schools and hospitals.

Forum Links Poor Environment to Child Sickness
MM1711144394 Moscow SELSKAYA ZHIZN
in Russian 5 Nov 94 p5

[Report by Leonid Kruglov, science observer for SELSKAYA ZHIZN, under the "Environmental Diary" rubric: "Look Into the Eyes of a Child"]

[FBIS Translated Excerpt] A Russian-U.S. conference devoted to children's health in environmental disaster areas was recently held near Moscow. [passage omitted]

The main aim of the conference, organized by the Center for Independent Environmental Programs and the U.S. Institute of World Problems, was to draw attention to the health problems of children living in areas where the natural environment has essentially been destroyed and where the mortality rate is far higher than the national statistical average.

"The first task is to establish a clear link between children's health and environmental pollution. After all, it is sometimes very difficult to prove that a child's illness has been caused directly by unfavorable environmental factors," Mariya Valentinovna Cherkasova, director of the Center for Independent Environmental Programs, said. "Our center is not a government organization with branches all over the country. Its main task is to defend people's right to a healthy environment, assist the population in environmental disaster areas, and preserve our natural and cultural heritage. We work on specific programs and projects and carry out independent environmental assessments. I spent a large part of my life working at the Environmental Protection Institute, where I was involved in compiling the Red Book of rare and threatened species of plants and animals. Our planet's flora and fauna are mainly disappearing because their natural habitat is being destroyed. It was then that I reached the conclusion that the world is on the brink of an environmental catastrophe, when we will be able to do little more than include man himself in the Red Book [of endangered species], as he will have nowhere left to go on earth. Degradation of the air, water, and soil has reached the limit. Our children suffer most of all from this. They must be protected first and foremost."

There are real reasons for alarm. For the first time since the end of the war, Russia's mortality rate is higher than its birth rate. In 1992, 11 percent fewer children were born than in 1991. Last winter the number of deaths in Russia was more than 50 percent higher than the number of births. The economic collapse is not the only reason for this. There is also a purely environmental basis to the problem.

A serious demographic situation has developed in the country. In the last 10 years the morbidity rate in newborn babies has risen from 82.4 to 173.7 per 1,000 births.

The incidence of bronchial asthma in children almost doubled in the period 1986-1990, and virtually every child in the country now suffers from one allergy or another.

"We have been drawn to Russia by the desire to combine efforts in the fight for a healthy environment, which is necessary to people living today and to future generations," Bradford Johnson, codirector of the Russian-U.S. project "Child Invalids in Environmental Disaster Areas" and executive director of the U.S. Institute of World Problems, said. "Children are the future of mankind, irrespective of the country in which they live. As a lawyer, I am primarily concerned by the problem of defending people's right to a healthy environment." Doctor of Medical Sciences V.V. Fokiyeva, a professor at the Moscow Institute of Pediatrics and Children's Surgery, talked about new, previously unknown children's illnesses, which are very similar to conventional illnesses in their clinical profile but are actually caused by unfavorable environmental factors. A new field is opening up in pediatric medicine: Environmental pathology.

"I am particularly concerned by the situation in rural areas, where essentially there is no monitoring of the environment," Valeriya Vasilyevna said. "The quality of drinking water has dramatically deteriorated everywhere as small rivers and subterranean water tables have become polluted by discharges from livestock units and by the crude use of toxic chemicals. People draw water from wells without realizing that they are sometimes drinking poison. Children are always the first to suffer, of course. The time when it was believed that children living in rural areas were healthier than their urban counterparts has long gone. The World Health Organization and the United Nations Children's Fund, UNICEF, recently adopted an environmental program of child protection. This is no accident. We doctors now encounter children's illnesses totally unknown to science. The medical profession simply does not know how to treat them."

One such region is Kemerovo Oblast, which Yuriy Fedorovich Kaznin, the toxicologist who heads the Kuzbass branch of the Socioenvironmental Union, described as a working model of hell on earth. Emissions from the Novokuznetsk Metallurgical Combine—equivalent to 600 carloads per day—even fall into Lake Baykal. There is not a single gram of unpolluted subterranean water within a 50-kilometer radius of Kemerovo. Drinking water in the city of Yurga is poisoned with chlororganic compounds. Most of the River Tom has been turned into a gutter containing toxic substances. There are smoking waste banks, methane gas emissions from mines, mountain taiga heavy with polluted air, which will perish by the beginning of the next century, and thousands upon thousands of hectares of agricultural land taken out of circulation because the soil contains all kinds of toxic substances.... As many as 913 rivers and streams in the Kuzbass have disappeared in the last 50 years. In this environmental disaster zone, 80 in 1,000 children have congenital deformities.

In the village of Anisimovo in Altay, situated 50 kilometers from a missile destruction site, four months after an explosion carried out in June 1989 almost all newborn babies were yellow as a result of damage to the liver. They were only saved by a 100 percent blood transfusion.

"Obviously we must improve the technology for destroying missiles with highly toxic fuel. Explosion sites must not be located in densely populated regions or close to marshes and areas with high-level subsoil waters," Doctor of Medical Sciences Vladimir Mikhaylovich Lupandin, a leading research associate of the Russian Academy of Sciences Sociology Institute and head of the first Russian-U.S. program to study the medical consequences of the Chernobyl accident, said.

The country's top specialists in the field of pediatric medicine, teachers, and parents bringing up invalid children who are victims of environmental pollution are sounding the alarm: The nation's health and, therefore, its future are in danger. The Center for Independent Environmental Programs, which organized this meeting with U.S. specialists, has set itself a noble aim: to ensure mankind's survival on earth. Political trends, state borders, and so forth, which currently divide people, no longer play any role in this situation. If anyone doubts this, let him look into the eyes of a child.

BELARUS

'Inadmissible' Strontium Level Discovered at Several Farms

WS1302142495 Minsk Radio Minsk Network in Belarusian 1300 GMT 13 Feb 95

[FBIS Translated Text] An inadmissible level of strontium has been discovered in grain at 15 farms in Homel Oblast. There have been no such reported cases before. Specialists explain this by a decreased amount of fertilizers used on land. If the amount of fertilizers is still restricted this year, radionuclide pollution may increase two- or three-fold.

UKRAINE

Parliamentarians Work on Nuclear Safety, 1995 Budget Issues

WS0602133995 Kiev INTELNEWS in English 1954 GMT 4 Feb 95

[Report by Oksana Hasiuk]

[FBIS Transcribed Text] Following parliament Speaker Olexandr Moroz' urging last week that parliament work harder in committee, Ukrainian deputies this week prepared several bills for consideration by parliament's general assembly. The general assembly meets Feb. 7.

Members of the parliamentary committee on nuclear energy and nuclear safety prepared the second reading of law on nuclear energy use and radiation protection. The bill, which passed in first reading on Dec. 11, 1994, calls for different kinds of ownership for nuclear power plants. But nuclear waste is to remain the exclusive domain of the state, according to the law.

Approval of the law in the first reading stirred strong protests among Ukrainian environment protection organizations and lobby groups for victims of the Chernobyl accident. "The law on nuclear energy and radiation safety

was worked out by the strong nuclear lobby in parliament that consists of directors of nuclear power plants. The law has only seven articles about radiation protection and nearly 90 paragraphs related to regulations on nuclear energy use," Yevhen Korobetskiy, head of the Union on Protection of Victims of Chernobyl, told IntelNews. "Our Union submitted proposals on the nuclear energy use law to the parliamentary committee on environmental protection. Basically we proposed that all areas in which nuclear power plants are located be considered emergency zones and that the nuclear power plants' staff have special responsibility for accident prevention," said Korobetskiy.

All of the group's proposals were approved by parliament's committee on environmental protection, but the committee on nuclear energy and nuclear safety discarded them, according to Heorhiy Filipchuk, head of the parliamentary committee on environmental protection. "The law on nuclear energy use and radiation protection should not be passed in the second reading because it allows the continued use of old nuclear reactors," said Filipchuk.

But Mykhailo Pavlovskiy, nuclear energy and nuclear safety committee chair, argued for a quick passage of the law in its second reading when he spoke with the press on Jan. 31. "The law on nuclear energy use and radiation protection has articles about the rights of people, victims of nuclear accidents, and public organizations protecting them," he said. According to Pavlovskiy, nuclear power plants produce 50 percent of Ukraine's electric energy. "We should use old nuclear power plants and gradually put into operation new ones," he added. Parliament is to consider the law on nuclear energy use and radiation protection in the second reading next week.

Parliamentarians are also planning to consider the second reading of the anti-drug bill in the coming weeks. Considering anti-drug measures in the parliamentary committee on fighting corruption and organized crime on Feb. 7, deputies that more responsibility must be placed on drug sellers and pushers.

All parliamentary committees have been considering the 1995 state budget plan proposed by Ukraine's Cabinet of Ministers. Parliament will review the state budget of Ukraine for 1995 on Feb. 8, according to Mykhailo Azarov, head of the parliamentary budget committee. Important changes to Ukrainian tax legislation depend on a swift approval of the government's bill on the budget. A bill on lowering taxes and the second reading of the bill raising minimum wages need to be accounted for in the national budget before they can become law.

Members of the parliamentary committees on key industries, social protection, and cultural issues criticized the Cabinet of Ministers for reducing expenditures from the state budget to social programs and for development of science, education, and the arts. "We cannot permit government to lower pensions and change the average compensation to recipients of Chernobyl funds, as is proposed by Cabinet of Ministers in the 1995 budget plan," said socialist Natalia Vitrenko, member of parliament's

committee on social protection during the committee's Feb. 2 consideration of the 1995 budget.

"There will be a big fight in the parliament whether or not to approve the 1995 state budget of Ukraine," said Yuriy Buzduhan, head of the parliamentary committee on social protection. A majority of deputies think the state budget plan for 1995 will not be passed by parliament on Feb. 8.

But constructive work by deputies was scarred early in the week by a scandal that erupted Monday when the presidential administration shut out 15 deputies from President Leonid Kuchma's Anti-Crime Coordinating Council meeting. The group of parliamentarians, including members of the parliamentary committee on fighting corruption and organized crime and members of the committee investigating the Black Sea Fleet Shipping Company (BLASCO) scandal, accused presidential administration chief Dmytro Tabachnyk of personally sending orders to exclude them from the meeting. The deputies appealed to the parliament Presidium the same day, asking the leadership to take legal action against Tabachnyk because his stance was a violation of the Ukrainian Constitution and the Law of Ukraine on the Status of People's Deputy of Ukraine. Presidium considered their appeal Thursday and ordered the parliamentary legal committee to investigate the incident. The Presidium will decide Monday whether the case should be brought before the general assembly.

Parliament Passes Law on Use, Safety of Nuclear Energy

*LD0802185895 Kiev Radio Ukraine World Service
in Ukrainian 1700 GMT 8 Feb 95*

[FBIS Translated Text] At its plenary sitting on 8 February, the Supreme Council of Ukraine passed a law on the use of nuclear energy and radiation safety.

This is a fundamental document in nuclear legislation. It determines the priority of man's safety in the environment, lays down citizens' rights and duties in the sphere of the use of nuclear energy, and regulates activities connected with the use of nuclear installations and sources of ionizing radiation. The law also provides for a legal basis of Ukraine's international obligation as far as the use of nuclear energy is concerned.

After voting on individual articles, people's deputies gave a second reading to a law on exclusive maritime economic zone, and introduced amendments to Ukraine's enforceable enactments concerning the application of criminal punishment in the form of a fine.

The Supreme Council ratified the agreement between the Ukrainian and Lithuanian governments on the promotion and mutual protection of investments.

Parliament Passes Bill on Nuclear Waste on First Reading

*LD1002181995 Kiev UNIAN in Ukrainian
1635 GMT 10 Feb 95*

[FBIS Translated Text] Kiev—The Supreme Council of Ukraine today passed the law of Ukraine "On handling radioactive waste" in its first reading.

Commenting in an interview with UNIAN on the Supreme Council's decision, Volodymyr Kholosha, Ukraine's acting minister for the protection of the population against the aftermath of the Chernobyl NPS accident, said the law establishes the utterly required legal basis for registering radiation sources, collecting, transporting, processing, and burying radioactive waste (RAW). It is due to the absence of such a law that instances of careless handling of radiation sources still occur.

According to Volodymyr Kholosha, the law also envisages that a separate state body will be charged with burying RAW at the expense of the enterprises that produce radioactive waste as a result of their activity.

Kiev Unable To Repair 'Dangerous' Nuclear Plants *AU0902205995 Paris AFP in English 2030 GMT 9 Feb 95*

[FBIS Transcribed Text] Kiev, Feb 9 (AFP)—Ukraine warned the world Thursday [9 February] that it cannot afford to carry out annual repairs to its five nuclear power plants, among them Chernobyl.

"The nuclear energy sector is not in a position to carry out the repairs planned for the spring and summer," Mikhail Umanets, president of the state committee for nuclear energy, told a news conference in Kiev.

"We have no spare parts, no fuel. We cannot replace the equipment that needs to be changed," he said. The five power stations have 14 reactors in operation.

The major industrialized countries of the Group of Seven (G7) have promised financial aid to close down the country's antiquated and dangerous nuclear plants.

Umanets, who has ministerial rank, said his committee would be writing to Ukrainian President Leonid Kuchma to warn him that it "absolved itself of all responsibility for the carrying out of repair work."

He said the civil nuclear sector needed between \$120 and \$140 million.

"There has never been enough attention paid to nuclear energy in Ukraine," he said.

He described the talks between the G7 and Ukraine over the closing of Chernobyl, 120 kilometres (75 miles) from Kiev and scene of the world's worst civil nuclear disaster in 1986, as "difficult, but not without results."

He said the West was no longer saying, as it was three or four months earlier, that Ukraine had to close reactors at once or it would receive nothing.

Chernobyl could not be closed down until there was adequate electricity production to supply Slavutich, a town of 30,000 people 45 kilometres (30 miles) from Chernobyl, he said.

Umanets raised the possibility that reactor number two at Chernobyl, closed since a serious fire in 1991, might be reopened and said it would be repaired if the money could be found.

Reactors numbers one and three are still being operated at Chernobyl. The fourth reactor exploded and burned in the disaster of 1986, sending a pall of radioactive fallout across much of Europe.

Oblast Fears Ecological Disaster Due to Electricity Outages

AU1302120095 Kiev HOLOS UKRAYINY in Ukrainian 10 Feb 95 p 4

[Unattributed report from Kherson: "Subsurface Flooding Is Imminent"]

[FBIS Translated Text] Residents of Skadovskyy and Holoprystanskyy rayons in Kherson Oblast seriously fear that disruptions in electricity supply may lead to an ecological disaster. Pumps removing water from drainage systems are not operating due to repeated outages in electricity supply. As a result, the level of subsurface water has risen sharply. In distant villages, cellars are already covered with water and buildings may collapse.

The situation will become particularly acute in spring, when the Dnieper waters will flow into the Krasnoznamenysky waterway, which has no impermeable coating, unlike the main Kakhovka Channel. It is precisely from this "source" that subsurface rivers and lake get their water. Due to the lack of funds, the planned reconstruction of the channel has been continuously delayed.

Deputy Minister Says Environmental Problems Growing

LD1102205495 Kiev Radio Ukraine World Service in Ukrainian 1700 GMT 11 Feb 95

[FBIS Translated Text] Ukraine inherited the most polluted economy, as far as ecology is concerned. Vasyl Shevchuk, deputy minister of environment and nuclear safety pointed this out in an interview with the ZERKALO NEDELI newspaper. The volume of accumulated waste produced by the mining, power engineering, metallurgical and other industries reaches at least 15 billion tonnes, and is growing by more than 1 billion tonnes annually.

According to Vasyl Shevchuk, virtually no clean underground sources of drinking water are left on Ukraine's territory. In this situation, the deputy minister believes, ecological priorities should be taken into account when resolving economic and political issues.

In Vasyl Shevchuk's opinion, the right of the present-day and future generations to a clean environment should be enshrined in a new constitution of Ukraine.

Further on Parliament Passing Bill on Nuclear Waste

LD1002224395 Moscow INTERFAX in English 1717 GMT 10 Feb 95

[“INTERFAX-UKRAINE” news item]

[FBIS Transcribed Text] KIEV, Feb 10 (Interfax-Ukraine)—The Verhovna Rada passed a bill on nuclear waste Friday.

The parliament only will decide where nuclear waste will be stored and the cabinet of ministers—the procedure for moving waste across the state frontier. The cabinet will also give final approval to the storage of waste and the facilities to be used.

Nuclear waste may be transported by corporate bodies and individuals holding the appropriate license.

Nuclear waste disposal will be financed by a special non-budgeted government fund. The cabinet will decide the procedure for setting the fund up.

Should nuclear waste cause any kind of accident or danger, the owner of the waste will be accountable and must act to eliminate the source or consequences of that danger.

Residents of areas close to stored nuclear waste have the right to compensation.

Vladimir Yatsenko, a people's deputy, told the parliament that 64,000 cubic meters of nuclear waste generated by nuclear power plants, 50 million cubic meters of waste generated from mining uranium ores and 4,400 cubic meters of waste generated by other means were being stored in the country at present.

REGIONAL AFFAIRS

EU Environment Ministers Accept Action Plan Against Floods

BR0602162695 Amsterdam DE VOLKSKRANT
in Dutch 6 Feb 95 p 3

[Report by Marieke Aarden: "EU Ministers Accept Plan
Against Floods"]

[FBIS Translated Excerpt] Schiphol—The action plan against flooding of the Meuse and the Rhine proposed by Transportation, Planning, and Environment Minister De Boer has received the support of her French, German, Belgian, and Luxembourg counterparts. During the informal council of EU environment ministers this weekend in the southern French town of Arles—a town chosen because it was flooded last year—a declaration to this effect was approved.

The "Arles Declaration" talks of "the unacceptable situation in recent times in which the lives of people are threatened, as well as property and the environment." The International Rhine Commission (IRC) is going to prepare plans not only to manage water in terms of quality (cleaner water through less drainage) but also to control quantity. [passage omitted]

The minister was very surprised at the behavior of the British in Arles. Britain has a bad environmental image, but in nature conservation it scarcely needs encouragement. With regard to this De Boer said: "The British Minister John Gummer also had his own country in mind when he said that Europe is now harvesting the bitter fruit of incautious management of rivers. In recent years too many people have viewed nature as their enemy, but the real enemy was man."

De Boer felt that Arles also gave impetus to the debate on climate change, which in some environmental circles is seen as the underlying cause of the floods in Europe. "In Europe there has been little thought of the climate disturbances that may have been brought about by too much carbon dioxide in the atmosphere," De Boer said.

"It does not make sense to have a debate now on the question of whether or not there really is a climate change, but the environment ministers do realize that major risks are being run. Instead of letting things take their course, people want to do what is reasonably possible by way of prevention. That means building dikes and reducing carbon dioxide emissions.

Renewable Energy Prospects to 2010 Assessed

BR0802105895 Brussels EUROABSTRACTS in English
Nov 94 pp 711-718

[Unattributed summary of study published by European Commission's Directorate-General for Energy (DGXVII): "The European Renewable Energy Study: Prospects for Renewable Energy in the European Community and Eastern Europe Up to 2010"]

[FBIS Transcribed Text]

Introduction

The main objective of the European Renewable Energy Study (TERES) was to assess the long-term prospects for renewable energy technologies (RETs) in the Member States of the Community and the countries of Central and Eastern Europe. The study investigated and reports on:

- the situation with regard to the current technical performance of the various technologies
- the costs of existing technologies at current prices;
- the prospects for developing the technologies;
- the foreseeable reduction in costs as a result of technical progress and mass production;
- the technical and economic potential of each technology;
- the possible penetration of technologies up to 2010 on the basis of four scenarios, using the forecasts of overall energy demand and of electricity demand set out in Energy in Europe - A View to the Future;
- an analysis of the constraints on further penetration of renewable energy technologies (RET's) and policy and other actions to overcome these constraints.

Renewable Energy Technology Assessment

The Study team, together with associated experts, provided reports on the state of the art of renewable energy technologies and prospects for cost reductions and performance improvements for the next 20 years. Using these reports as a basis, a database was established covering costs and performance in the reporting years for each RET. This database was used to make market projections for renewable energy to 2010.

In order to identify the most promising technologies, cost comparisons were made between renewable energy technologies and fossil and nuclear energy with and without the external costs to environmental pollution.

Four end-users were analyzed, based on a disaggregated approach to demand forecasts. These are given below:

- centralised electricity generation;
- decentralised (on-site) electricity generation;
- decentralised (on-site) production of heat;
- liquid biofuels for transport.

Combined heat and power (CHP) was also included in the analyses.

The technologies can be categorized in four groups depending on their commercial maturity and their cost competitiveness with fossil fuels. A technology is assumed to be commercially mature if suppliers exist who can provide in terms of the unit energy costs in ECU/kWh. Calculations were made at a range of discount rates to reflect the rates of return required by different Member States' governments and for private sector funded projects in different countries.

Group 1 - Commercially Mature and Can Be Cost Competitive With Conventional Energy

This group comprises hydroelectric, geothermal, wind, active and passive solar heating, landfill gas and energy from other wastes. Hydroelectric dominates the renewable energy industry and is well proven. Geothermal and landfill gases also have achieved small but significant penetration into commercial markets. Both wind electricity and solar thermal heating are competitive at sites with a good resource (The latter only when compared to electrical heating). Costs of wind energy are likely to decrease, so that generation from less windy sites becomes viable. The waste technologies are competitive due to the high costs of waste disposal and therefore a negative cost for waste as a fuel when burnt on site. Solar PV is not, in general, competitive for centralised generation, but can be included in this group for the niche consumer markets, and for remote generation where the costs of grid connection or of running diesel generators are high.

Group 2 - Commercially Mature, But Not Cost Competitive at Present

This group includes solar PV, liquid biofuels, tidal, with wind and small hydro at sites where there is a lower density energy resource. Technical development in PV and wind will mean that their costs will be reduced. Unless external costs are taken into account, PV will not be able to compete on cost with fossil fuels grid-electricity until after 2010. However, it will be accepted before then in niche markets and for remote applications.

Tidal power uses well proven technology, but because of high capital costs and long construction periods, cannot compete with fossil fuels, even at a 5 percent discount rate. The costs of producing bio-ethanol and bio-diesel are much higher than petrol or diesel and therefore, at present, this fuel can only compete with the support of tax relief or subsidies. However, with decreasing feedstock costs and improvements in conversion technology, the cost of liquid biofuels could decrease by 30 percent by 2010. Further cost reduction will depend on the introduction of new technologies to process woody biomass into a liquid fuel.

Group 3 - Technical Development Needed But Will Be Cost Competitive

One RET falls into this category: electricity and heat production from energy crops. Crop yields need to be improved and reliability proven before commercial maturity is achieved. Projected unit energy costs are competitive with electricity and heat derived from fossil fuels.

Group 4 - Technical Development Needed With Fewer Prospects for Competitiveness

Wave energy and solar thermal-electric are in this group. Significant technical development is required to produce reliable and competitive systems, and this is not expected before 2010.

Renewable energy in the European Community

TERES commissioned an in-country assessment of renewable energy and its prospects in relation to Government policy in each Member State of the EC. In 1990 renewable energy met 10 percent of the EC demand for electricity, but only 3.3 percent of the demand for heat. The overall contribution to primary energy needs was 4.3 percent (under the Eurostat convention for primary energy calculation).

The total renewable energy resource in the Community is vast, far greater than the total energy demand. However, the technically accessible resource (the technical potential) is less. Using assumptions detailed in the report, the technical potential in the Community amounts to 343 Mtoe, equivalent to 47 percent of the 1990 final energy consumption. National Policies in Member States have been reviewed. The degree of commitment to renewable energy varies widely; there is a lack of strong commitment in at least half of the Member States. Six Member States have set targets for renewable energy and this is helping to stimulate the industry in those countries. The study observed a trend in some Member States towards greater integration between energy strategies and economic, environmental and social policies, but this approach has not yet been adopted throughout the Community.

The main initiative from the CEC to support renewable energy is the ALTENER programme which has set targets for 2005 of:

- increasing the contribution of RET's to the Community's primary energy supply to 8 percent
- tripling the production of electricity by RET's (excluding large hydro);
- securing a biofuels share of 5 percent of total fuel consumption by motor vehicles.

Renewable Energy in Central and Eastern Europe

Assessments were also undertaken for Bulgaria, the Czech and Slovak Republics, Hungary, Poland, Romania and the republics of the former Yugoslavia (EE-6). RET use in these countries is very low (3.0 percent of total primary consumption). Hydro dominates RET generation in the electricity sector (98 percent of the RET total and 7 percent of electricity production overall). There are virtually no other RET's currently providing electricity in any of these countries. Of the heat producing RET's, forest residues (88 percent) and geothermal sources (11 percent) are the largest contributors.

RET technical potential in Central and Eastern Europe, excluding the former Yugoslavia (the EE-5, is estimated to be 58 Mtoe, equivalent to 25 percent of 1990 final energy consumption).

At the present time, along with wider economic issues, policies within Central and Eastern Europe are undergoing major review, with many longer term objectives still to be fully defined. Only the former federation of Czechoslovakia (supporting legislation and low interest loans) and

Hungary (target of 6-8 percent primary energy by 2000) are known to have made formal commitments to renewables, although the governments of Romania and Bulgaria are seeking ways to increase the role of renewables in their energy balances.

Given the region's huge requirement for capital investment in all types of improved infrastructures, long-term investments such as those necessary for many of the renewable technologies are unlikely to receive high priority, particularly where energy prices do not yet reflect world costs.

In both the market for electricity and that for heat, decision-making power is being transferred away from government officials into the hands of the consumers. Markets in the region, once heavily subsidised, are starting to reflect true costs. However, there is some way to go, particularly in the domestic sector. Therefore, the use of strong market signals at consumer levels will be necessary if renewables are to penetrate to any significant extent within decentralised markets.

Constraints and policy Options

Even though RET's may be commercially available, they are still often prevented from achieving significant market penetration because of a wide range of constraints on their recognition and utilisation as viable alternatives to existing conventional energy technologies.

The Study has assessed both the barriers to commercialisation and policies and measures that might be taken to alleviate or remove them.

Assessing RET Penetration: TERES Methodology

A computer model, ALTREM, was used to forecast the market penetration of RETs in the Community and Central and Eastern Europe under six different scenarios (4 for the EC-12 and 2 for the EE-5).

Base Case (BC (EC-12): Present policy actions of individual Member States

Existing Programmes (EP): Additional effects of existing EC programmes related to the environment and energy technologies, including THERMIE, SAVE, JOULE, 5th Environmental Action Programme

Proposed Policies (PP): Successful implementation of proposed EC energy policy framework including ALTNER, Internal Energy Market, Carbon/Energy Tax. Some supporting measures to remove constraints.

Full Social Cost (FS): Internalisation of all external costs associated with energy production and supply. Full supporting measures to remove constraints on RET dissemination.

Base Case (BC (EE-5): Existing National Programmes.

Optimistic (OP): Rapid transition to market economies and social costs for energy - PHARE, European Energy Charter and Full Social Costing.

The Potential for RET's: TERES Results

TERES Results for the EC-12 and EE-5 scenarios indicate that significant growth in the penetration of renewables will not occur unless further policy measures are taken to assist the commercialisation of RETs. Growth in the EC under the Existing Programmes scenario is slow, from 4.3 percent of primary energy production in 1990 to 6.4 percent in 2010.

In the Proposed Policies scenario more rapid growth is achieved to 9.2 percent in 2010. Under this scenario, the ALTNER target of 8 percent total RET contribution and tripling of RET electricity production can be met.

In the Full Social Cost scenario, accompanied by all the policy measures listed above, the RET penetration increases to 13.3 percent of primary energy needs in 2010. This scenario also achieves the ALTNER target of liquid biofuels accounting for 5 percent of transport fuels.

For Central and Eastern Europe, penetration of RET's will remain low, at around 5.6 percent, unless there is significant national government and donor resistance. Under the Optimistic scenario, the model predictions are for a contribution of 12.2 percent of primary energy needs by 2010.

Conclusions

The main conclusions to be drawn from TERES are:

- Under the present Community and national policies towards renewables (Base Case and Existing Programmes scenarios) RETs will not make major inroads into the European energy market. Market penetration in the EC will be limited to around 6.5 percent of the market by 2010 and in Central and Eastern Europe is not expected to rise much above 5 percent.
- The addition of measures included under the Proposed Policies scenario in the EC would accelerate growth to a limited extent. Under these conditions, renewables are expected to contribute around 9 percent of the EC's total primary energy by 2010.
- Only measures such as those included under the Full Social Cost scenarios will allow renewable energy resources to make a significant contribution to energy supply in Europe by 2010. The level of intervention will allow market penetration of over 13 percent in the EC and 12 percent in Central and Eastern Europe.
- These results indicate that, under the more vigorous scenarios, ALTNER targets can be achieved. For overall RET share and tripling of electricity production they may be met (exceeded in the case of electricity production) under the Proposed Policies scenario; for the transport biofuels target the Full Social Cost scenario is necessary.
- The contributions to the EC's CO₂ stabilisation target may be seen in the contribution by RETs in reducing CO₂ emissions compared to the 1990 level. Under the Full Social Cost scenario, CO₂ emissions will be reduced by 5 percent of their 1990 level by 2000 and 12 percent by 2010.

- The measures included at the Community level in the Proposed Policies and Full Social Cost scenarios are not sufficient in themselves to ensure the above results; they must be accompanied by a wide range of policies and measures at the national and local level.

- Decentralised supply accounts for approximately 60 percent of the total RET-derived energy in all scenarios. This potential will only be realised if greater emphasis is placed on R&D for small systems and on the introduction of legislative framework to support these applications.

With Regard to Individual RET's

- Hydroelectricity has already achieved significant penetration into the market for electricity. In the EC-12 there will be little further penetration but because of the relatively short time span being considered by TERES, hydro will continue to dominate renewable electricity supplies and still account for over 40 percent of RET-derived electricity in 2010, even under the Full Social Cost scenario.

- The biomass waste technologies may be resource constrained by 2010; there are limited amounts of waste; recycling will end to reduce the amounts of MSW and industrial wastes available; and the amount of land available for further landfill will put a limit on energy output for both physical and environmental legislation reasons.

- Wood crops, liquid biofuels, wind, and solar PV are the key to the medium and longer term future of renewable-derived electricity. Their contributions are low in the early years, but rise rapidly under the Proposed Policies and Full Social Costs scenarios. Of these new RET's, wind shows the most rapid growth in the early years, with wood crops and the liquid biofuels becoming significant only after 2000. This group of RET's shows the greatest potential for continuing penetration after 2010. Penetration of liquid biofuels is dependent on subsidies and tax concessions.

Geothermal, tidal and wave all make minor contributions (about 4 percent of the renewables total in 2010).

- The prospects for RET contributions to heat are very promising. Countries with large agricultural sectors have good prospects for additional use of wastes and purpose-grown crops for heating.

- Markets for solar technologies (particularly solar active heating) are relatively underdeveloped and offer considerable scope for further development. Even geothermal heat can be exploited to a greater degree than at present.

Policy Issues and Recommendations

Present conditions within the EC energy market are not conducive to rapid penetration by RET's. Whilst, a number of renewable technologies have costs which are approaching those of alternative sources of supply, many other issues hinder the swift penetration of RET's into Europe.

The clearest policy issue to emerge from TERES is that Community support, to include valuation of external costs

of energy production, together with a high level of national government support of renewables, is essential if RET's are to make a significant impact on energy supplies in Europe by 2010. This support must include all the measures presented for the Full Social Cost scenario, together with a wide range of technical, institutional, educational, financial, and legislative measures which will operate at the national level.

This demands a major adjustment in the way that governments regulate energy industries and influence the decisions of energy utilities and the general public. Without strong intervention, to the levels modelled in the Full Social Cost scenario, RET's will remain marginalised as a source of energy in the EC.

In view of this finding, there is an urgent need to assess cost-benefit ratios of all possible levels of EC and Member State intervention and their macroeconomic and societal effects. This is an essential prerequisite to any major increase in assistance to the renewables sector. Such a task would allow the Community and Member States to determine the most appropriate levels of intervention.

Given the need to meet global environmental targets and to provide for long-term sustainability within the energy sector, further assessment of the interaction between the energy, environment, agriculture and transport sectors must be undertaken so that an integrated strategy can be developed. A coordinated multisector approach will be necessary to fully exploit the full potential of the various renewable energy sources.

TERES makes a strong recommendation for further research to be undertaken on external costs of energy sources. A consensus view on these costs must be developed so that the recommendations made above can be implemented in the knowledge that they offer the most appropriate solution to present energy problems.

It is also clear from the research undertaken during the study that a fundamental change in assessment of renewables at the project level will be necessary for many RET's to penetrate to their full potential. Further analysis of the risks attributable to renewables projects will assist the understanding of which aspects can be minimised by government intervention.

In Central and Eastern Europe the primary policy issue at the present time is the need to secure a long-term political and economic future for the countries concerned. Given the region's huge requirement for capital and the general malaise of its energy sector, RET's will not penetrate significantly unless the European Commission and other foreign donors (together with national governments) prioritise its introduction. Investment in efficiency measures will give greater returns over the short term, so the initial focus for policy development should be on the introduction of frameworks which are supportive to RET's. If frameworks for RET support are put in place over the next few years, renewables will begin to penetrate as overall demand starts to increase. This penetration by renewables

will complement the energy efficiency measures already under way in these countries.

Finally, in the period to 2010, some RET's (mainly waste-fueled RET's) will reach their full potential; others (such as hydro and forestry waste) will continue to play a role. However, some (e.g. wind, wood crops) will not become fully commercial until the early part of the next century. Other RET's will take much longer to become competitive. If longer-term penetration by renewables of Europe's energy market is to continue, Community policy will need to support all RET's, even those not projected to be commercial by 2010. TERES shows conclusively that lengthy lead times are required for strong government action to begin to take effect in the market place. It is imperative, therefore, that the Community and Member States face their responsibility for defining a sustainable energy future for Europe through the adoption of renewable energy technologies and begin to put the elements of that future in place now.

European Firms Build Fuel Cell-Powered Bus
BR1302123695 Milan IL SOLE-24 ORE in Italian
17 Jan 95 p 8

[FBIS Translated Text] The first bus in Europe to be powered by fuel cells is being tested in Brussels. It has been produced by Ansaldo Ricerche, Air Products, Saft, and Elenco.

The bus has been running on a special route for a few weeks, without any technical problems arising. It will shortly be put onto the normal bus routes managed by the Brussels and Amsterdam transport companies.

The fuel cells that supply the motor of the bus with electrical energy are generators that are able to directly and continuously convert the chemical energy of a fuel and an oxidant into electrical energy.

The birth of the fuel cell was back in 1939, but the first practical applications started in the space age. They carried out an important role in the generation of electrical energy for the plant on board missiles and satellites.

The fuel cell can be compared to the traditional electrochemical battery, but the fuel and the oxidant that react together to generate electrical energy are continuously supplied. It is precisely the continuity of its functioning that distinguishes the fuel cell from normal electrochemical batteries.

It is a clean technology. The fuel that feeds the anode can be a hydrogen rich mixture of gases, whereas the oxidant that feeds the cathode is normally air. The elimination of the internal combustion engine allows the release of pollutants into the atmosphere to be eliminated. In fact the global reaction leads to the production of distilled water and carbon dioxide, while particles [particolato], oxides of sulfur, and carbon monoxide are completely absent, and negligible quantities of nitric oxides are present. Then, the system is absolutely silent. Furthermore the use of fuel

cells enables the limitations of autonomy, and the long recharging periods, typical of electric vehicles, to be overcome.

The alkaline fuel cells in the Ansaldo bus are fueled by liquid hydrogen and, when maximum power is required, the electric motor also utilizes energy that is stored in a group of batteries that are recharged by the same fuel cells when the energy requirement of the bus is minimal, for example when going downhill, and when stationary. The braking energy is also used to recharge the batteries.

The demonstration bus has been built by modifying an articulated bus, 18 meters long, housing the fuel cells and auxiliary systems in the rear part.

Although the number of passengers that can be carried has been reduced because of the presence of the fuel cells and auxiliary systems, the performance of the bus in terms of speed and acceleration, is equal to that of a corresponding vehicle with a diesel engine.

Four European companies joined their forces, catalyzed by the European EUREKA [European Research Coordination Agency] research project. Ansaldo Ricerche developed the electrical drive, the electronic control system, and the motor. Air Products (Holland) developed the hydrogen feed system for the fuel cell, Saft (France) developed the nickel-cadmium batteries, and Elenco (Belgium) developed the alkaline fuel cells.

Parallel to this demonstration, as part of the European research projects, prototype transport systems are being prepared using the last generation of fuel cells based on polymer membrane technology. The European union is working on the development of this technology and has entrusted some projects to Ansaldo Ricerche that plan for: a hybrid bus 12 meters long for the company running the municipality services in Brescia, a hybrid boat that will go into service with the lake navigation company on lake Maggiore, and a Clio Renault car with polymer membrane fuel cells. Together, these demonstrations should confirm that transport systems using fuel cells are the only way of achieving the emission levels typical of nonpolluting vehicles or ZEV's [zero emission vehicles].

AUSTRIA

Minister Reports European Parliament Objections to Mochovce

AU0402185695 Vienna WIENER ZEITUNG
in German 4 Feb 95 p 3

[Unattributed report: "ORF: No Pure Television Hearing"]

[FBIS Translated Text] "In the European Parliament significant reservations regarding the planned completion of the Slovak nuclear power plant in Mochovce are intensifying," Environment Minister Maria Kallat reported on Friday [3 February].

Ken Collins, chairman of the Environment Committee of the European Parliament, has warned the European Bank

for Reconstruction and Development (ERBD) against making a decision before a public hearing on the project has taken place and before all unclear issues about the nuclear power plant's safety have been clarified.

Kallat will broach the issue of Mochovce also at a three-day meeting of the EU environment ministers, which began in Arles (France) yesterday.

She thinks that the refusal of the Austrian Radio and Television Corporation, ORF, to hold simply a television hearing on Mochovce is "super," Kallat added. Global 2000 also welcomed this attitude. The EBRD reaction to this piece of news was different: "We cannot understand that," Mochovce project manager Alain Pilloux said.

"Due to state policy responsibility," the ORF is not willing to hold a "television hearing," as demanded by the Slovak side. One cannot undermine the Austrian Government's demand for a hearing open to all citizens with a television broadcast, Information Director Rudolf Nagiller said.

The Hungarian Mochovce hearing, to be held in Budapest next Friday [10 February], is also open to experts, the Budapest Environment Ministry stressed.

French ocean researcher Jacques-Yves Cousteau has now supported Global 2000. He stated: "I agree that there are far safer and more economical ways than the nuclear power plant in Mochovce to satisfy the Slovak demand for energy." This statement is particularly important because Cousteau is a member of the EBRD Environmental Advisory Committee and one of the harshest critics of the "irresponsible activities" of the French energy company Electricite de France.

According to Greenpeace, the study on the profitability of the Mochovce plant was manipulated—by about 400 million German marks in favor of the nuclear option. At the instigation of the EBRD, results were altered after the study was completed, it was said.

Parliamentary Parties Unite To Oppose Mochovce
AU1002191495 Vienna DIE PRESSE in German
10 Feb 95 p 8

["ric"-signed report: "Nationalrat Mobilizes Government Against Mochovce"]

[FBIS Translated Excerpt] Vienna—Following the emotional debate on the bomb attacks on Wednesday [8 February], the 9 February debate saw parliament in unfamiliar harmony. The "survival question" (Greens deputy Anschober) of the Slovak nuclear power station at Mochovce united the five parties.

This unfamiliar consensus resulted in a joint motion for a resolution urging the Federal Government to do everything possible to prevent the completion of the nuclear power station. The motion recommends several measures: Austria should ask itself whether its membership of the EBRD (European Bank for Reconstruction and Development) makes any sense. If the EBRD grants a credit to

Mochovce, Austria must "reconsider its participation in any potential future capital increase." [passage omitted]

Praise from Rauch-Kallat

Environment Minister Maria Rauch-Kallat called the action of the parliamentary groups a "highlight of Austria's anti-nuclear policy." She said that a comprehensive assessment of Mochovce will be given to the EBRD and the EU Commission. She will present Austria's concerns to the Environment Ministers Council in Brussels on 9 March, she said.

GERMANY

Bonn Goes on Environmental Offensive

95EN0041A Duesseldorf WIRTSCHAFTSWOCHE
in German 17 Nov 94 pp 14-16

[Article by Martin Kessler: "Old Fronts"]

[FBIS Translated Text] After years of idleness, coalition ecologists are again going gallantly on the offensive. The Union and the FDP [Free Democratic Party of Germany] are eyeing voters who have gone over to the Greens.

Crazy world: There was a time when Bavaria took pride in its brisk environmental policy, and in Bonn FDP Economics Minister Guenter Rexrodt inhibited ecological advances of any kind. But as soon as voters began to turn away from the liberals, party leaders changed their policy. At the start of coalition negotiations, FDP Leader Klaus Kinkel revealed as his motto: "We must begin to improve our environmental protection image." Result: Old Environmental Minister Klaus Toepfer, together with the negotiators for the liberals, Guenter Rexrodt and the young FDP delegate Birgit Homburger, prevailed over the restrictive CSU [Christian Social Union] across a wide front.

While the coalition partners achieved only mild compromises in the main areas of economy, finance, and internal security, the government is planning to return to the offensive in the area of environmental protection in the coming four years. It has resolved to do several things.

- To drastically reduce the benzol content in gasoline.
- To require new automobiles to consume an average of one-third less gasoline than current models do, by the year 2005.
- To substantially increase the share of old automobiles, electronics scrap, and used batteries that are recycled, via ordinances regarding abandonment or company responsibility.
- To slow unchecked surface use in the Federal Republic with a new soil conservation law and a revamped nature conservation law.

Primarily, however, liberal and Union environmental politicians are pushing for the further ecological development of the state tax system. Eco-taxes, as they are referred to in a new internal position paper from the federal minister of economics, "must have a positive controlling function."

Those inflicting damage on the environment should be required to either "pay or reduce the amount of ecological damage they are inflicting."

For some time now, even in the economic wings of the FDP and the Union, the word has been that while environmental protection measures do place a burden upon many branches of industry, at the same time they permit the creation of thousands of new firms which, as manufacturers of environmental technology, profit directly from more intense regulations.

The market for environmental goods in Germany has been growing by six to eight percent annually, and in the world trade of green products the Federal Republic remains in the lead with a 21-percent share of the market and an export value of 35 billion German marks [DM]. Research institutes such as the German Institute for Economic Research in Berlin and the Rhenish-Westphalian Institute for Economic Research in Essen estimate that by the year 2000 over one million people will be employed in the environmental industry.

Clearly the liberals and Christian Democrats are not willing to surrender the new eco-businesses to the Greens. Alternative business associations such as the Association of Ecologically Oriented Firms and the Green-Businesses are already boasting hundreds of members.

At any rate the old fronts no longer remain valid. Take for example the eco-tax: No-nonsense ecologists like Atmospheric Researcher Ernst-Ulrich von Weizsaecker from the Wuppertal Institute for Atmosphere, Environment, and Energy, are already satisfied with a moderate but continuously increasing energy tax. In contrast, firms and managers such as Otto-Shipping of Hamburg or Reiner Koenig, spokesman for AEG's household products division, have recently become enthused over ecological tax reform. Even the president of the Federal Association of German Industry (BDI), Tyll Necker, has cautiously renounced fundamental opposition to higher taxes on the consumption of resources.

In the coming week, the departing BDI head will again be doing his best to present all arguments against environmental taxes in the presentation of the Association study "Changing Course With Eco-Taxes." In truth, however, Necker the realist would be willing to accept a higher tax rate on energy consumption as long as production were to remain exempt.

But the coalition has not come quite so far. For as much as ecologists in Bonn are pressing for environmental taxes: There still is no concrete design for an ecological tax system. The only attempt made thus far, the Brussels EU Commission proposal for a Europe-wide CO₂ energy tax, cannot be implemented in the partner countries at this time.

The opposition in Brussels is not inconvenient for the energy intensive branches of industry. Thus the BDI has calculated in its eco-study that with continuous increases in energy prices of 7 percent per year, in 15 years the

chemicals industry would have to cope with an increase in costs of DM23 billion. And the considerably smaller non-metallic minerals industry will have to shell out almost 2 billion marks more in only ten years. This dampens the willingness to institute tax reform, even for some of those in Bonn.

In contrast, the liberals are ready to hoist their flag over the recycling regulations governing old automobiles, electronics scrap, and batteries set forth in the coalition agreement—due to their preference of company responsibility in industry.

The situation in the auto industry is typical. A dispute is currently raging between producers and dealers on one side and scrapyard owners on the other, over the lucrative disposal business. No easy task for the FDP: If they support the idea of company responsibility that is being pushed for by industry and automobile companies, they will put off the scrapyard owners, who fear they will lose their markets if disposal is managed privately by the larger concerns. On the other hand, FDP Minister Rexrodt recently made a stand for "free-market company responsibility."

A true dilemma for the liberals, who would prefer in their time of need to present themselves to all sides as allies.

[Box, p 14]

Eco-Taxes

Pro

- Cause and Effect Principle ("He who damages the environment pays")
- Consideration of environmental costs in firms' cost accounting
- Choice between payment and avoidance
- Tax break for work and capital
- New jobs in the environmental protection industry

Con

- Depreciation of capital funds in environment-intensive branches of industry
- Cost disadvantages in international competition
- Ignorance of true environmental costs
- Additional source of finances for freely spending politicians
- Loss of jobs in traditional branches of industry

Environmental Groups To Hold Alternative Climate Summit

95EN0122C Frankfurt/Main FRANKFURTER
RUNDSCHAU in German 17 Jan 95 p 6

[Article by Stephan Hebel: "Mass Rally From Below for Climate: Grass-Roots Groups Issuing Invitation to Their Own Summit During the UN Conference in Berlin"]

[FBIS Translated Text] Why not think big? "Just imagine you were the chancellor," Hermann-Josef Tenhagen told the citizens of Berlin recently. "Four million people were out of work and then somebody offered you 500,000 jobs at no cost to the economy. And, in addition, you could

even do something on behalf of the climate." Wouldn't everyone jump at the chance? "The fact is that such an offer really exists," the readers were informed. After all, the German Institute for Economic Research did find that ecological tax reform could create one-half million jobs. The way to do it: raise the price of energy consumption and at the same time lower labor costs. The money the government collects in the process it should return to the people by subsidizing social insurance for those who work and thereby lower their contributions.

Tenhagen and his activists of "Climate Forum 95" who are coordinating the efforts of the environmental groups on the occasion of the world climate summit to be held in Berlin in late March really do think big. They do not eschew sensational headlines ("500,000 Jobs to Give Away"), nor do they avoid contacts which many an ecological fundamentalist would call unsavory, e.g. Tenhagen's call to phantasize about stepping into the chancellor's shoes was contained in a brochure jointly published by the Berlin senate and the federal government of which 250,000 copies were printed.

Which clearly shows that they are prepared to lay it on pretty thick but, says press spokesman Tenhagen who took a 6-month leave of absence as an editor of Berlin's TAGESZEITUNG, "fundamentalism is not our thing." The strategy is to put pressure on the summit participants and, above all, on the German government by stating concrete and realistic demands without fear of confrontation. The main focus in the list of demands supported by more than 100 environmental and development groups is to call on the industrial nations which are the greatest producers of the environmentally harmful greenhouse gas CO₂ by far to reduce emissions by at least 20 percent by the year 2005 as against the levels of 1990.

"We definitely need even more of a reduction," Tenhagen says. "The question is what do we need for the conference?" The ecological groups are deliberately staying within the framework in which the conference itself will operate. Their demand corresponds in every detail to the resolution submitted by the 36 members of the Alliance of Small Island States (AOSIS). This is definitely radical enough to point up the German government's "credibility crisis," as Tenhagen puts it. The fact is that Germany has not submitted a reduction goal to the Berlin conference at all, nor did the Kohl government institute an energy tax last year. Pragmatic or realistic, the Climate Forum's criticism is clear: the German government has demonstrated "on pivotal occasions that it is not living up to its claim of being a world leader in climatic policies."

To get this to change in Berlin, the environmental activists are trying to make the politicians move between now and the start of the conference. Greenpeace and Greens, bicyclists and high school students, wind energy fans and Third World freaks are planning a large number of events in the weeks ahead. The Berlin-Brandenburg evangelical academy is holding a weekend seminar on "Protection of the Climate—An Acid Test for Ecumenical Solidarity;" Alliance 90/Greens has scheduled a debate on climatic

issues affecting food production and consumption entitled "Are We Eating Up the Atmosphere?" Wind power and solar energy are extensively discussed. Young people are busy constructing a living solar clock, with a real tree acting the part of the hour hand.

On 27 March, the eve of the summit, NGO's [Nongovernmental Organizations] from around the world will meet for their own summit entitled "Goals for Berlin." And there will also be demonstrations. What the environmental activists would like most is to stage a mass rally on 2 April, turning the date into a Sunday without automobiles. At the very least they would like to cause a "slowdown" on Berlin's Avus urban freeway. All these activities are not being organized by the Germany-wide Climatic Forum but by individual groups and/or the regional organization "Climate Summit Network." According to Tenhagen, the Forum, with a six-month budget of some 900,000 German marks (DM), has assumed responsibility for coordinating deadlines, collecting information, organizing public relations and acting as a "political catalyst" for the discussions among the various groups.

Some of the money comes from the senate-owned "Consulting and Service Society for the Environment" and some from the Federal Foundation for the Environment while staff salaries are paid with job program funds. The events are paid for by the individual groups which draw on a subsidy of more than DM1 million also provided in the final analysis by the government. And if current negotiations with the German railroad system are successful, the alternative summeiteers will even have an ecologically correct sponsor.

One supporter has already been firmed up. The building in which both the Climate Forum and the Network have their offices is owned by a hotel chain. The firm had originally wanted to tear the building down but then rented it out to the environmentalists. The latter first spent two months trying to fix the defective heating system, even resorting to "climate-harmful electric fan heaters" the power for which is produced by power plants which emit large amounts of CO₂. For the home stretch leading up to the climate conference, however, all the logistics are in place and the heating system is in good working order.

The office space sharing arrangement among Climate Forum and Network also works smoothly. This is not really a foregone conclusion, since the local groups deplore the fact that the Forum does not lay greater stress on the connection between climatic violations and the injustices of the world economy. Which is why they did not sign the Germany-wide list of demands; the more so since they are pushing for more ambitious cuts, i.e. 50 percent less greenhouse gases by the year 2010. But as befits good coalition partners, the differences remain on the back burner at least until the conference. In the end, Network spokesman Tillmann Roemer says, he can live with the reduction goal announced by the small island states. Thinking back to the days of the Wall, Roemer muses that "after all, Berlin was an island state once upon a time, too."

Contact address for Climate Forum and Network
Climate Summit: Behrensstrasse 23, 10117 Berlin.
Tel.: 030-202203-0.

BMFT Funds Environmental Biotechnology R&D
BR3101115095 Bonn TECHNOLOGIE-NACHRICHTEN
MANAGEMENT-INFORMATIONEN in German
25 Nov 94 pp 2-3

[FBIS Translated Text] R&D work on seeking, characterizing and optimizing microorganisms that can contribute to relieving the burden on the environment is being funded under the BMFT's [Federal Ministry of Research and Technology] "Environmental Biotechnology" program. Degradation methods and rates, plus opportunities for increasing the efficiency potential of the microorganisms are to be the main research areas. The extent to which certain pollutants can be absorbed and processed by microorganisms (bioavailability) is also to be studied.

Important requirements for the practical application of research into environmental biotechnology are procedures for demonstrating polluting substances by microbial methods, plus the standardizability of biotechnology cleanup procedures. New biological procedures for avoiding waste through microbiologically produced, degradable materials are to be developed, and new composting methods for reprocessing waste will be established.

The joint projects begun in 1993 and 1994 deal, among other things, with the biological decontamination of soils contaminated with petroleum, and the elimination of heavy metals from effluents.

Supplementary to these projects, a project definition phase on the subject of synthesis and degradation of biopolymers has begun. On the one hand, it aims to assist university researchers in a closer awareness of industry's requirements, and on the other, to enable them to offer services to industry.

In addition, the first technology transfer center (TTZ) for environmental technology, with headquarters in Leipzig and Frankfurt am Main, has become operational.

Preliminary phases are planned for three additional joint projects, in order to clarify the biological feasibility of the project ideas. Topics covered will be the microbiological purification of radioactively polluted water in Thuringia, the microbiological disposal of explosives, and increasing the bioavailability of polycyclic aromatic hydrocarbons, such as occur in the soils of coking plants and gas or tar works.

In order to stimulate further innovations in the field of environmental biotechnology, a specification of the funding program is in preparation. The goal is to achieve scientific breakthroughs in certain problem areas, such as developing degradation methods for mixed contamination.

Significant contributions to, for example, preventive health and environmental measures are anticipated from the further implementation of the BMFT's "Environmental biotechnology" funding program. An expansion of

basic biological knowledge about metabolic processes and the development of innovative ways of using them is expected. This should also prove a milestone on the route to closed material cycles.

Under the "Biotechnology 2000" technical program, the BMFT is currently funding 12 joint projects in the field of environmental biotechnology to the tune of 12.6 million German marks [DM]. This subsidy is supplemented by an additional DM6.3 million that was mobilized from third parties (private industry, the laender) through the BMFT funding body. Twenty-eight research groups from industry, the universities, and research institutions are participating in these projects, which will run from two to five years.

In all, funding totaling DM50 million is earmarked for the BMFT's "Environmental biotechnology" subsidy program.

In addition, two joint projects are being funded under the BMFT "Environmental research and technology" program and two at the German Federal Environment Foundation (DBU). An additional DM7.2 million is available for these four projects.

Examples of BMFT Projects in the Field of Environmental Biotechnology

Scientific Reclamation of Polluted Sites

A joint project started in 1994 by firms in Hesse and Lower Saxony, together with various university groups, is dealing with the microbiological reclamation of polluted armaments sites. The objective is to render usable the sites formerly occupied by manufacturers of explosives and warfare materials in the new and original German laender, which are mainly polluted with TNT (trinitrotoluene), hexogen, and hexyl. For large areas with diffused, relatively low-level contamination, thermal cleanup methods or the ones based on soil washing cannot be justified on grounds of ecology and economy. Biological processes would be an alternative here. The BMFT is funding the project with DM1.3 million.

Elimination of Heavy Metals from Effluents

Another joint project concerns the elimination of heavy metals from industrial effluents. The project is being conducted jointly by a firm in Baden-Wuerttemberg and one in Brandenburg. Heavy metals can enter the human organism via the foodchain, and can cause acute and chronic damage there. They are also carcinogenic and, in certain circumstances, mutagenic. Since heavy metals including mercury, zinc, lead, and cadmium, are not degradable by natural processes, the intention is to bind them to algae or bacteria, and thereby remove them from the water. The project is being financed to the tune of DM1.7 million.

Development of Technology Transfer Centers in the Area of Environmental Biotechnology

In the fall of 1993, the Technology Transfer Center for Environmental Biology became operational at the Leipzig-Halle Environmental Research Center (UFZ) and at

DECHEMA in Frankfurt am Main. TTZ's are to advise local authorities and companies in deciding on their cleanup requirements. The TTZ's can provide supplier-neutral information about the application options and prospects of success of biological processes, define cleanup objectives as a function of future use, and provide training. Efforts will also be made to create in the TTZ the facility for testing cleanup processes. In the long term, several TTZ's are planned, to establish a countrywide information and service network for problems in environmental biotechnology. The TTZ for Environmental Biotechnology at the UFZ and at DECHEMA is receiving funding of DM2.1 million.

Biological Degradation of Pesticides From Industrial Effluents

Production of the pesticide dimethoate gives rise to waste water that, owing to its toxic content, may not be discharged directly into the treatment plant. A new microbial method will dispose of the pollutants right where they occur. Therefore, the disposal method used so far of adding caustic soda could be replaced—although this removes the toxic substances, it also entails an increased saline loading—and the effluent safely discharged into the treatment plant under construction at Bitterfeld. Apart from the Technical University of Berlin, firms in Berlin, Wolfen, and Bitterfeld are participating. The BMFT is funding the project with DM1.8 million.

Reduction in Emissions of Organic Composites Studied

BR3101115695 Bonn *TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN* in German 25 Nov 94 p 6

[FBIS Translated Text] With its "Production-Integrated Environmental Protection" subsidy program presented in January this year, the BMFT [Federal Ministry of Research and Technology] aims to contribute to initiating a thorough reorganization, determined by ecological responsibility, of industrial production and the handling of products.

A priority of the subsidy program is to reduce emissions of readily volatile organic composites, known as VOC's, which include solvent-containing varnishes. Their use causes almost 500,000 tonnes of solvents to be released annually. In conjunction with other atmospheric pollutants, the photochemical degradation of these solvents leads to the formation of summer smog. The varnish slurries arising from use are dumped as special waste. From the environmental point of view, powder varnishes offer a suitable substitute.

Therefore, at the conference "New Developments in Powder Varnish Technology" held by the German Research Society for Surface Treatment (DFO), which took place in Duesseldorf on 11 October, one of the topics discussed was the results of a joint project, funded by the BMFT, in which manufacturers of varnishes and raw materials, users, manufacturers of plant and equipment,

together with institutions, worked on an interdisciplinary, cross-sector basis to develop new processes for expanding powder coating applications. The increased use of powder varnishes can significantly reduce or completely eliminate emissions, energy-guzzling waste air purification plants, paint slurries and waste products, and the effluent from conventional paint spraying booths.

This research and development project, funded to the tune of 3.6 million German marks by the BMFT, is being coordinated by the German Research Society for Surface Treatment [DFO]. The project design is such that the methods, products, and know-how formulated relate especially to medium-sized companies. The collaboration of the DFO means that the results obtained are swiftly put into practice and this conference aims to contribute in that regard.

Russia To Process Plutonium Using Siemens' MOX Method

AU0602151195 *Hamburg WELT AM SONNTAG* 5 Feb 95 p 7

[Report by Wolfgang Pollack: "Russians Want To Make Civilian Use of Weapons-Grade Plutonium With the Help of German Technology"]

[FBIS Translated Text] Berlin—Weapons-grade plutonium is to be used for civilian purposes in Russia with the help of a mixed-oxide method (MOX) developed by Siemens.

According to information obtained by WELT AM SONNTAG, this is stated by the final communique issued by an expert committee, which is to be presented to the public next Wednesday [8 February].

At the moment, about 120 metric tons of weapons-grade plutonium are stored in Russia. With the MOX method, the plutonium can be turned into nuclear fuel rods, which serve the production of electricity in light-water reactors.

The committee report notes that, by processing one gram of weapons-grade plutonium in a reactor, about 8,000 kilowatt hours of electricity can be produced; the entire amount could produce 1.2 trillion kilowatt hours. This is about three times Germany's total electricity output in 1994.

The strain on the global environment is also considerably eased by turning plutonium into nuclear fuel rods: In total, their use in nuclear power plants reduces the emission of the greenhouse gas carbon dioxide by 1.2 billion metric tons, the working paper says. In Germany, carbon dioxide emission amounted to about 916 million metric tons in 1994.

The consortium headed by the Foreign Ministry, which has been assigned to implement the project, comprises, on the German side, the Reactor Safety Company (GRS) and Siemens AG and, on the Russian side, the Nuclear Energy Ministry (Minatom), with which the GRS has already concluded an agreement for cooperation.

The final report says little about the costs of this project. "Issues of profitability and costs are dealt with only here and there," the working paper says. One price is, however,

already certain: The construction of the Russian MOX plant is estimated at 750 million German marks [DM]. In comparison: The world's only plant of this kind is currently located in Hanau in Hesse and has cost DM1.1 billion so far.

Russia has already cited the town of Chelyabinsk in Siberia as the location of a MOX plant. The nuclear fuel rods produced there are to be used not only in Russian nuclear power plants, but also in Western facilities. This would yield foreign currency for Russia.

The construction time of the MOX plant is estimated at three to five years; it will take 25 years to process the 1210 metric tons of weapons-grade plutonium there.

Already, in 1994, the FRG transferred DM17 million in aid to Russia and Ukraine together for the dismantling of nuclear weapons. The Bundestag has not yet decided how much money will go to the East this year.

Article Previews Upcoming Global Climate Summit Issues

AU0702142995 Frankfurt/Main FRANKFURTER ALLGEMEINE in German 7 Feb 95 p 4

[Article by Carl Hohenthal: "Resistance to More Extensive Protection of the Climate: Preparations for the Berlin Summit Meeting Prove Difficult"]

[FBIS Translated Text] Bonn, 6 February— A difficult political climate is impacting on preparations for the largest event that the United Nations has staged in Germany so far. At the end of March, 5,000 representatives of 180 states want to talk about the protection of the climate for two weeks in Berlin. The origins of this first conference of states that are parties to the treaty on a climate convention lie with the great UN summit meeting that took place in Rio de Janeiro in the summer of 1992. However, the enthusiasm for ecological matters that seemed to seize world heads of state and governments then is hardly in evidence this time. The last preparatory conference for the Berlin meeting began in New York on 6 February. Proposals are to be submitted for the subjects that should be discussed at it. However, one cannot expect much unity.

Detailed Plans or Not?

The issue is one of whether the states will be able to agree on detailed plans to reduce emissions of greenhouse effect gases that are harmful to the climate. The effect of these emissions is that it is gradually becoming warmer, sea levels are rising, new deserts are coming into being, and storms are occurring more frequently. About 120 states have signed the climate convention since the Rio conference. It commits the members of the OECD and the states of Central and Eastern Europe to reduce emissions of greenhouse effect gases to their 1990 level by the year 2000. However, the convention does not make it obligatory to prevent emissions from rising after the year 2000. So far, Germany and the European Union have been unable to have their demands of stabilizing emissions at their 1990 level accepted. Some large industrialized

states—especially the United States—as well as many developing countries are not prepared to assume such an obligation.

The Americans fear that they will be expecting too much of their compatriots if they insist on extensive reductions. Instead of that, they want to introduce more effective environmentally friendly technologies in developing countries. On the other hand, the developing countries, where emissions of greenhouse effect gases have been relatively low until now, fear that they would have to fulfill obligations in the event of extensive reductions. Thus, the result is that only Germany, along with 40 smaller island states and a few smaller European states such as Holland and Denmark, wants to achieve progress in policy on the climate. The island states fear that they will sink into the sea if the climate continues to grow warmer. The government wants to develop the climate convention by adding a climate protocol. It should set the scope and a time schedule for a reduction. In addition, the detailed steps for achieving these goals should be set down. They include lowering gasoline consumption for saloon cars to 5 liters for every 100 kilometers. Further, these measures should be implemented together with other states.

However, there is also growing resistance to such a joint implementation. The majority of industrialized states take it to mean that there is a possibility of reducing emissions in developing countries and being credited for these reductions with respect to fulfilling their own obligations. This makes sense in economic terms, because it is frequently much cheaper for a company to construct a modern environmentally friendly facility in a developing country than to make changes to an existing facility in an industrialized country so that it will satisfy the latest technological standards. Many developing countries have rejected this idea as "ecological colonialism." They fear that industrialized countries will be able to influence the policies of host countries and thus spare themselves the cost of having to change their own lifestyle. The government has responded to that by saying that the industrialized countries should always fulfill some of their reduction obligations in their own country. In addition, developing countries cannot be forced to accept modern environmental protection projects. Germany interprets "joint implementation" to mean that it does not apply to existing climate convention obligations, but to future, far-reaching obligations to achieve reductions. In view of the great degree of resistance, Bonn expects that a climate protocol will not be discussed until the third follow-up Rio conference in 1997. It would be a success for the Berlin conference if it were simply to achieve agreement between the states to the effect that they would want to work on a protocol. The small island states protocol, which has the ambitious goal of reducing carbon dioxide emissions among industrialized states by at least 20 percent by the year 2005, is not given any chance of success for the foreseeable future. The government wants to adhere to its national goal and reduce carbon dioxide emissions by between 25 and 30 percent by the year 2005 compared to 1987.

A Question of Finance

Finally, negotiations are to be held at Berlin over the financing of the climate convention. It is envisaged that the restructured Global Environmental Facility (GEF) of the World Bank would initially assume the task of financing projects to promote the protection of the climate in developing countries. The fund has a total of \$2 billion at its disposal for the years 1994 through 1997, and Germany has contributed \$240 million of that sum. Germany will campaign to have the GEF made the convention's permanent financial mechanism at Berlin. So far, there has been resistance from developing countries, which reject the World Bank's conditions.

Minister Merkel Rejects 'Comprehensive Energy Tax'

AU0802134695 Berlin DIE TAGESZEITUNG
in German 8 Feb 95 p 3

[Interview with Environment Minister Angela Merkel by Annette Jensen; place and date not given: "The Most Stupid Thing One Could Do"]

[FBIS Translated Text]

Jensen: What concrete results do you expect from the UN Climate Conference in Berlin?

Merkel: I expect us to conclude a brief to negotiate a protocol. When such a protocol should be completed would have to be clear. And I hope that the objectives of such a protocol become clear: What will happen with carbon dioxide emissions of the industrialized nations as of the year 2000, and through what measures should we achieve this objective?

Jensen: So the Berlin conference will not adopt any binding resolutions under international law?

Merkel: No, but I hope it will create the necessary framework conditions. For a protocol we need 80 countries to sign the document. And unless a miracle occurs at the preparatory conference in New York, we will not receive the support of that many countries. In the European Union [EU] we have a clear idea of what we want, but we are only 16.

Jensen: Will Germany put its signature to the draft protocol of the small island states (Aosis) [expansion not given], which provides for a binding obligation of the industrial nations to reduce their carbon dioxide emissions by at least 20 percent from the 1990 level by the year 2005?

Merkel: The way things look now we cannot sign this proposal because we first need the support of 80 states before we can sign it. Yet, even within the EU there is no majority for the Aosis proposal. In the EU, Denmark is probably the only other country apart from us that is in favor of this protocol. This does not mean that we do not stand by our own objective, which has not changed: reducing carbon dioxide emissions by 25-30 percent by the year 2005. But for tactical reasons, we think it makes more

sense to act together as the EU to achieve greater success in negotiations with the other industrialized nations.

Jensen: How do you hope to convince the other EU countries?

Merkel: In December, the EU Council of Ministers passed a paper on preparing the Berlin conference in which we said: After the year 2000, the EU member countries should keep their carbon dioxide emissions steady or reduce them. That means that all members recognized the objective of stabilization. It was not easy and required two sessions of the council of ministers. Our objective is now to have all industrialized nations support it.

Jensen: And why should Germany not dash ahead?

Merkel: There must be a chance that in the end 80 states put their signature to one objective. It does not make a good impression and will not strengthen our position in the negotiations if we act as model country and then say: Look at us, how fantastic we are.

Jensen: What is your stance on the issue of an energy tax?

Merkel: I am first and foremost in favor of introducing an EU-wide energy tax. Unfortunately, we did not reach agreement in the Council of Ministers on such an EU-wide tax. Nevertheless, we agreed that we need tax instruments.

Jensen: Why does Germany not lead the way?

Merkel: A carbon dioxide energy tax such as that would have considerable consequences at current price levels. Compared to other European countries, the price of electricity is very high, and the gasoline tax is relatively high in Germany. Nevertheless, I am saying that we cannot rule out the possibility of a German solo-action unless something happens at the European level in the near future.

Jensen: Why not take action right now, particularly since the government has to discuss the issue of coal subsidies, anyway?

Merkel: The situation in Germany is very unfavorable at the moment because people are rather embittered due to the solidarity surcharge, and argue that the state is cashing in money from wherever it can. One of the conditions of the carbon dioxide tax is that it must not have an impact on tax revenues.

Jensen: So if the energy tax does not create an extra burden, why do we not introduce it right away?

Merkel: Taxes must be levied on all primary energy sources. To settle the problem within three months, to find the right balance and design the tax in a way that it can be further developed and ultimately integrated into a European system, is a difficult task that cannot be achieved so easily. After all, such an energy tax would serve the only purpose of subsidizing coal—which means that such an energy tax would support the most polluting energy source. That would be the most stupid thing one could do.

Jensen: What do you think the German industry can be expected to put up with in terms of energy policy?

Merkel: The overall industry burden must not increase because it would impair our competitive strength. When we introduce an energy tax we would have to remove some of the burden in other spheres. A sensible approach would be to ease the burden on the cost of labor. Still, right now, I am not pleading for a comprehensive energy tax.

Article Views SPD Controversy on Nuclear Energy Policy

AU0902210695 *Duesseldorf HANDELSBLATT*
in German 9 Feb 95 p 4

[Report by Eckart Spoo: "Schroeder's Energy Is a Subject of Controversy Within the SPD"]

[FBIS Translated Text] Hannover, 8 February—Stuttgart-based Minister Schaefer said that only those who keep to the party's clear-cut resolutions can speak out the basic issue of energy on behalf of the SPD [Social Democratic Party of Germany]. Schaefer strictly rejected any alternative that would permit new reactor types or allow existing reactors to remain in operation over a 40-year period. Anyone who advocated such alternatives does not want a new energy policy. "If Schroeder wants to change anything about the policy of abandoning nuclear energy, then he must obtain a majority within the party beforehand," said Schaefer. At the 1985 Nuremberg party conference, the SPD had undertaken to abandon nuclear energy within 10 years in the event that the SPD should form the government in Bonn.

Speaking in Hannover yesterday, Schroeder said he was amused about "the timeframes that have a hold on some people's minds." The operators of reactors had permits valid for an indefinite period of time and were not interested in closing down such facilities as long as they were able to make money. Schroeder talked of a "license to print money." The closure of reactors ahead of schedule would have consequences regarding company law on stocks, said Schroeder. That is why it is not easy to reach agreement with the operators on how long reactors should continue to function. Regarding new types of reactors, Schroeder said that companies do, of course, have a constitutional right to continue with research. However, there are indications that it would be technically impossible to construct an "inherently safe reactor" that would not emit any radioactivity in the event of a meltdown. Even if it could be built, it would be too expensive. To that extent, the SPD does not, for the time being, have to press for a legal settlement that would mean that the introduction of new reactor types would require a two-thirds majority in the Bundestag. A legal solution of that kind was the subject of energy talks two years ago.

However, Schroeder did not exclude the possibility that energy corporations would sooner or later seek permits for the construction of new types of reactors.

Schroeder accused Schaefer, "the greatest nuclear energy opponent of all," of having approved the operation of the Baden-Wuerttemberg nuclear power station at Obrigheim.

Schaefer's radicalism grows in proportion to his geographical distance from such facilities, said Schroeder. It was also significant that Schaefer had rejected safety checks of the "Castor" containers kept at Philippsburg that are to be used for transporting materials to the storage facility at Gorleben, saying that one should not follow regulations, but make decisions "from the angle of practical reason." At the same time, Schroeder called on Baden-Wuerttemberg and Bavaria to construct storage facilities themselves so that Lower Saxony does not have to bear the burden of disposing of such waste by itself.

DM11.5 Billion Loans for Environmental Protection in 1994

AU0802131795 *Hamburg DPA* in German
1145 GMT 8 Feb 95

[FBIS Translated Text] Bonn (DPA)—In 1994 a total of 11.5 billion German marks [DM] in state subsidy loans were issued for investments in environmental protection. These were DM2.6 billion more than in 1993. There will hardly be another increase this year, but the level is to be maintained, Environment Minister Angela Merkel (Christian Democratic Union) said in Bonn on Wednesday [8 February].

In the future prevention of environmental pollution is to be promoted as a priority. Particular benefits are also to be given to companies that submit to the voluntary EU environmental check (eco-audit). As a focal issue Merkel stressed the promotion of natural-gas-driven cars. The ceiling for subsidies with loans from the European Recovery Program (ERP) will be lifted for investment in natural-gas-driven vehicles and gas stations.

The sum of DM11.5 billion for 1994 consists of three pillars. The German Compensation Bank (DtA) expanded its loans from the ERP special funds (Marshall plan) from DM2.4 to DM4.3 billion. Furthermore, the nationalized subsidy bank issued DM1.5 billion (in 1993: DM1.2 billion) from its own funds. The Reconstruction Loan Association (KfW) approved environmental loans for DM5.7 (5.3) billion.

In all programs companies can get long-term loans at favorable interest rates. The loans have a grace period of between two and five years. The effective interest rates are between 7.19 and 7.81 percent. For ERP loans conditions are more favorable in the new laender than in the west.

SPAIN

Progress in Improving Plant Cultivation in Arid Areas Seen

BR2601104595 *Madrid ABC* in Spanish 13 Jan 95 p 64

[Report by A. Aguirre de Carcer: "Spanish Researchers Isolate Gene That Will Improve Plant Cultivation in Arid Areas"]

[FBIS Translated Excerpt] Madrid—Three scientists from the Molecular and Plant Cell Biology Institute in Valencia have managed to isolate a gene which makes it possible for the cells to cope with external salt concentrations much

higher than normal. This is what Jose Ramon Murguia, Jose Maria Belles, and Ramon Serrano announced in a study published today in *SCIENCE*. They will be trying to develop transgenic tomatoes which can resist the salinity of very arid soil.

Progressive salinization of land using intensive irrigation has led to an urgent need to improve the genetic makeup of plants which can withstand toxicity produced by salt. Some headway has been made in this direction, but the discovery of the molecular base of this mechanism means that progress will be more rapid.

"Up to now we did not know what the salt's weak point was in the cell," said Ramon Serrano to ABC. This weak point which the group of researchers in this center, affiliated to the CSIC [Higher Council for Scientific Research] and the Polytechnic University of Valencia, has been able to identify is the enzyme codified by a gene called "HAL-2."

To achieve this breakthrough, Ramon Serrano explained, yeast cells were used as a research model, as plants would have been more complicated to use. Many copies of the HAL-2 gene were introduced into cells in a saline environment, and this led to a considerable improvement in metabolic growth.

The enzyme isolated from the HAL-2 gene is a nucleotidase which plays a vital part in the metabolic function of sulfate assimilation, in which more than 100 proteins participate. The role of the nucleotidase, which is sensitive to sodium and lithium, is to catalyze one of the processes required for sulfate to be converted into methionine. Ramon Serrano explained to this newspaper that the breakdown of the HAL-2 gene allows to considerably improve cell metabolism, even if the salt has penetrated the cell.

Up to now, the strategy of these researchers in plant molecular biology has been to deal with the salt before it penetrates the cell, and here the aim has been to activate two other genes, HAL-1 and HAL-3, which have an effect on sodium.

The Spanish scientists claim that the enzyme codified by the HAL-2 gene has the same function in plants, which is why this discovery can be extrapolated to more complex organisms and could lead to genetic engineering being used to produce plants which are resistant to salinity.

Ramon Serrano also added that they have been working on a European project to produce transgenic tomatoes with an engineered version of the HAL-2 gene, which will give these plants greater resistance to the toxic aggression of salt. Hence they will try to introduce the HAL-2 gene in the genetic makeup of tomatoes. "It is a complicated project because even if we manage to produce transgenic tomatoes very quickly, we will have to see how they behave in greenhouses and in the field," added Serrano.

A Matter Still Pending

Application could be extended to other sorts of plants like cereals, even though they are the most difficult to genetically engineer. Up to now, headway in the production of

transgenic plants has led to resistance against biological aggression (viruses, insects). However, for the moment, according to this researcher, no breakthrough has been made with plants which suffer from the threat of physical aggression such as soil salinity. "This is the big challenge facing the new green revolution which the production of transgenic plants is bringing about", said Serrano.

SWEDEN

Electronics Adhesive Research Viewed

BR3001123895 Oslo NEW SCANDANAVIAN

TECHNOLOGY in English Vol 6, No. 4, 1994 pp 26-27

[Unattributed article: "Adhesive to Replace Lead - Environmental Revolution in Electronics Manufacture"]

[FBIS Transcribed Text] A globally increasing environmental consciousness is giving clear indications that a replacement for lead solder in electronics production must be found. All over the world, and especially in the USA, Germany and Japan, the trend is towards a ban on lead as soon as possible, since lead is one of the world's greatest environmental problems at the moment.

Electrically conductive adhesive is today thought to be one of the best replacements for lead solder in electronics manufacture. A great international effort is therefore under way in this area. Even though the environmental aspect has hurried along the development of an adhesive, there are other factors motivating the R&D organization to concentrate on conductive adhesive.

"Above all, it is a question of reliability. Lead solder is not as reliable as adhesive, considering that electronics often function in very tough surroundings, such as in cars, on ships, and in military applications," says Johan Liu at the Swedish Institute of Production Engineering Research, IVF, Gothenburg. Research on conductive adhesive has been going on there for over four years, in a project involving twelve companies from four countries.

More and More Applications

The first phase involved identifying problems with conventional techniques, and finding a satisfactory replacement for lead solder. Following that, technologies for adhesion, production and process, etc. had to be developed, and IVF are now finding applications for the adhesive technique in different products.

The opportunities of finding suitable applications are increasing as the adhesive develops and becomes more reliable. So far, IVF's work has shown the adhesive technique to be useful in camera and video wide-screen electronics.

Although it is only in recent years that research and development in the field of conductive adhesive have really taken off, the technique has been known for quite some time.

"It has been used for hybrid components, but not on surface mounting electronics because of the old adhesive's

properties. Thermoplastic adhesive has now been replaced by a thermosetting one, which has better chemical properties and a different metal content. This makes it possible to progress from hybrid techniques to applying the technique in surface mounting," Johan Liu explains.

Simpler Process Engineering

A part from environmental advantages and greater reliability, the adhesive has proved to be more favourable than lead solder when it comes to process engineering.

"Fewer stages are needed in the process with adhesive than with lead solder. Fluxing and washing are unnecessary, it's just a matter of gluing and setting. Furthermore, this can be done at lower temperatures than soldering - approximately 120-150°C rather than 220°C - so less energy is used. The adhesive technique also makes it possible to build more compact electronics.

"Adhesive does not flow in the same way as soldering lead, so the distance between components may be decreased. This saves around 15 percent of the space. We can also make the electronics more durable, since adhesive absorbs stress better, so risk of cracks in the joints is significantly reduced."

Five R&D Areas

IVF's work on conductive adhesive is directed at the five following areas/questions:

Conductive adhesive instead of lead solder for gluing onto surface mounted boards, conductive adhesive as connecting material in LCD-module application, flip-chip attachment with anisotropic conductive adhesive, assembly of naked chips, and environmental and toxicological aspects of adhesives in production.

Adhesive joining onto surface mounting applies to both tin-plated and copper or gold-plated ones. IVF have found that the best solution is every respect, not least environmentally, is the combination conductive adhesive on gold-plated boards.

Cheaper Than Lead Solder

The above mentioned video wide-screens are one example of results achieved in work with conductive adhesive in LCD-module application. When it comes to flip-chip attachment, i.e. attachment with the active side of the chip facing downwards in order to decrease signal distance, gluing has proved cheaper than soldering in spite of silver being one of the ingredients in the present adhesive. The reason for this is that the process stages are shorter than with soldering.

The fourth area, assembly of naked chips, has mainly confirmed the adhesive's ability to absorb stress better.

"Here it can be ascertained that adhesive joining is at least as good as soldering. This means that larger components can be assembled. The trend is towards the chip becoming larger and larger, and integrating more and more functions," Johan Liu remarks.

Many Unanswered Questions

Despite all these advantages, Johan Liu points out that many questions about the adhesive's applications still remain unanswered.

"We must study both the toxicological aspects and the potential environmental problems, the adhesive may present. We don't really know what the adhesive's life-cycle looks like, how it affects us humans when dealing with large amounts, or its effect on the outside environment. Therefore we must increase knowledge in this area. It will be some time before we see large-scale electronics production; there are so far very few companies in the world that use it. As for large-scale production here in Sweden, we'll have to wait until the turn of the century, perhaps even longer. Unless of course a political decision is made to ban lead completely," says Johan Liu.

Environmental Organizations Issue 1995 Programs

95WN0061A Stockholm DAGENS NYHETER
in Swedish 14 Dec 94 p 10

[Article by Erika Bjerstrom: "Everyone Has a Measured Environmental Space"]

[FBIS Translated Text] The environmental organizations have presented their strategies for 1995. Once again they are getting ready to fight the nuclear power industry. After the rain forests, coral reefs are the next type of nature in acute need of rescue, and environmental space calculations are a new and important concept.

A telephone survey made by DAGENS NYHETER indicates that four of the largest environmental organizations have chosen strategically important environmental issues on which they intend to concentrate their resources. Both Greenpeace and the Society for the Protection of Nature put nuclear power at the top of their list of the most important environmental issues of 1995.

"Sweden is a unique country in two respects: We have invested very heavily in nuclear power and have also decided to abolish it. Now the politicians must heed the decision from the popular referendum and begin to abolish it. That way Sweden can become a model for other countries in the world and show that it is possible to manage without nuclear power." This is what Per Rossander of Greenpeace told DAGENS NYHETER. Greenpeace bases its opposition primarily on the safety issue, which involves how to store the nuclear waste. He dismisses the newly appointed Energy Commission, which is to study the Swedish energy needs without preconditions, as a "typical political maneuver." "That is a way to hide from a very hot and uncomfortable issue."

Recycling Thinking

But Greenpeace intends to concentrate on creating opinion, and that will take place both through direct actions and through information. Another issue toward which Greenpeace intends to aim the spotlight is how society is to be incorporated into an ecological cycle. "A lot

of fine and visionary things have been said, but we lack practical ideas of how to implement it," Per Rossander continues.

Holland is one model where research appropriations are guided toward projects that develop technology into pure production. With the aid of government funding industry is also in the process of developing something called "green chemistry."

"That is where the adaptation of the entire industrial chain, from research to manufacture, takes place. In Holland there is also insight into the fact that certain industries do not fit in a recycling society."

Examples of Swedish industries that, according to Greenpeace, lack a future are chemical companies which manufacture chlorine and PVC. They can expect visits from Greenpeace activists.

Internal Crisis

Greenpeace is right now struggling with a problem, a crisis after the 1980's when the organization attracted record numbers of supporters. Now they are wavering between their two identities: being a protest movement whose members climb factory chimneys or being a well-read and knowledgeable lobbying organization. The interest by mass media in their spectacular actions has cooled. The fact that Greenpeace is less visible in the media has contributed to the decline of its membership from 190,000 to 130,000.

The Society for the Protection of Nature prioritizes nuclear power for the same reasons as Greenpeace. In addition, the Society for the Protection of Nature intends to support ecological agriculture after the consumer successes with ecologically grown foods. Ethical consumption, that is to say solidarity with the Third World, is also high up on the list (which DAGENS NYHETER recently described in the series of articles called "Your Due Share").

Overproduction

The Friends of the Earth put overproduction of resources by the Western world at the top of its list. But instead of asking "How should a rich country reduce overconsumption?" the Friends of the Earth International have formulated a new strategy. Now, each person in the Western world is to get a consumption quota, figured out by means of environmental space calculations. The proposal, which originally came from the Dutch Friends of the Earth, has caused a great sensation within the EU.

The EU Commission recently commissioned a German institute to make an environmental space calculation for all of the EU's citizens.

In the Dutch calculation for Holland's citizens, the following key numbers were arrived at:

—Carbon dioxide emissions: 1.7 metric tons per person and year. That means an 85-percent decrease from today's emission level.

—Transportation: One liter of gasoline per person and day. This limits people to 25 km a day by car or 10 km by airplane.

—Consumption of metals: Consumption of aluminum may amount to two kilos per person and year, in view of its being a finite resource and the wounds inflicted by mining on nature. That means a reduction by 80 percent.

—Meat consumption: From 180 grams a day to 50 grams a day, based on how much feed is required for producing meat.

Ecospace

"Our model is based on four principles," says Charles Berkow, international secretary of the Swedish Friends of the Earth.

"The first principle is 'ecological space.' This is the sum of what the planet Earth can give to all people in the form of raw materials and on the planet's ability to absorb emissions without reducing future living space. After that comes the principle of equality, that each individual has an equally large 'ecological space,' regardless of where he or she lives in the world. This is to be achieved in the year 2010. One generation is a sufficiently long time to solve the question of nontenable development, but is sufficiently close in time in order to be able to predict important technical progress, which makes utilization of the resources more efficient."

But that should not necessarily mean serious limitations in the lifestyle of the Western world. New technology as regards transportation, energy, and living will radically reduce the consumption of raw materials, according to the Friends of the Earth.

The plan is controversial but has attracted attention precisely because it offers a thought model for how to tackle some of the crucial issues of our time: limited natural resources, global environmental threats, poverty in the Third World, as well as maintenance of a tolerable lifestyle.

According to the Friends of the Earth, the plan should not be forced through by an autocratic world government but carried out by individual countries after political decisions. Industry would play a key role with new technology.

The Coral Reefs

The World Wildlife Federation, one of the largest environmental organizations in Sweden, is known for its work on saving pandas, tigers, and rhinoceroses. Now it, too, is changing strategy.

"We are abandoning saving individual species in favor of aiming for entire types of nature, in which both plants and animals are threatened," says Sten Lundberg, information chief at the World Wildlife Federation.

Based on the new view the panda symbol ought to be exchanged for a bamboo forest, but no such plans exist.

"The nature types we prioritize are forests, oceans, and fresh water ecosystems, such as swamps and wetlands."

Along the tropical coasts are coral reefs, which, according to the World Wildlife Federation, will become one type of nature on which increasing attention will be focused. The coral reefs are almost as rich in species as the rain forests and are threatened in many ways. They are exploded in the search for fish, and they are poisoned by tranquilizers sprayed for the purpose of catching fish intended for

aquariums and by waste water discharge. They are also very vulnerable to the greenhouse effect. A raised sea level affects coral reefs, which pale and die, because they must live at precisely the right level, close to the life-giving sun rays. Once they have been destroyed, they are almost impossible to replace.

A "coral reef diploma" may become the next idea after the successful collection campaigns for the tropical rain forests.

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